PACIFIC PULP & PAPER INDUSTRY

Volume 5
Number 8

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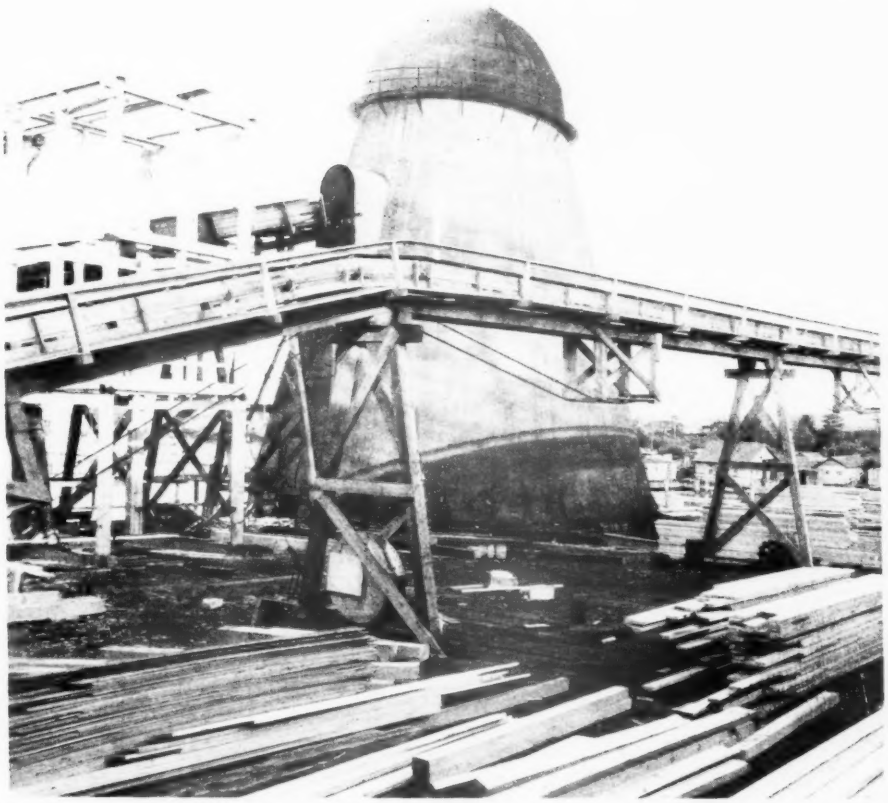

A Pacific Coast Lumber Mill Refuse Burner Loses Its Job

There's a story inside about it

JULY + 1931

LIQUID CHLORINE

TACOMA ELECTROCHEMICAL CO.
KEYSTONE BRAND
TACOMA, WASH.
SUBSIDIARY PENNSYLVANIA SALT MFG. COMPANY

ACIDS
ALUMS
ALUMINAS
CAUSTIC SODA
LIQUID CHLORINE
BLEACHING POWDER
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THE distributing facilities of the Pennsylvania Salt Manufacturing Company besides being nation wide are highly specialized. Tank car equipment and containers are maintained in perfect condition to assure prompt service and safety to customers.

Liquid Chlorine and Caustic Soda are available the country over on short notice due to the strategic location of Penn Salt plants.

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TACOMA ELECTROCHEMICAL COMPANY

TACOMA, WASHINGTON

WESTERN DIVISION OF PENNSYLVANIA SALT MANUFACTURING CO.

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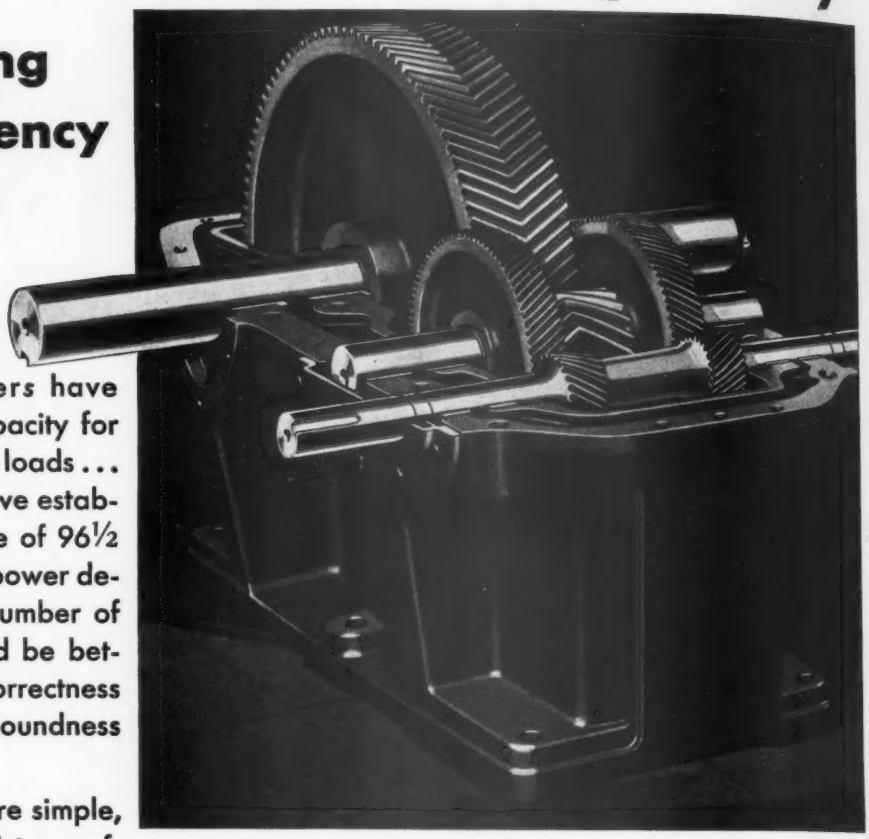
100% Overload Capacity

for starting and emergency loads



FALK Speed Reducers have 100% overload capacity for starting and emergency loads . . . and in actual service have established the high average of 96½ to 98½% efficiency in power delivery, depending on number of reductions. What could be better testimony to the correctness of their design and soundness of their construction?

Falk Speed Reducers are simple, compact, oil-tight, dirt-proof, quiet, free from heat and vibration. They permit a higher reduction per gear . . . transmit load and transform speed with less friction loss . . . than any other type or kind.

Falk Speed Reducers Are Highly Efficient!

There are Falk Speed Reducers that will economically and satisfactorily meet your particular requirements. They are made in standard sizes and ratios and carried in stock for immediate shipment. Write for Bulletin No. 230.

THE FALK CORPORATION, Milwaukee, Wisconsin

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SMOOTH OPERATION—LONGER SERVICE
With Falk Flexible Couplings

Falk Flexible Couplings provide smoother operation . . . longer machine life . . . increased production. This is because of their spring and groove construction which permits a degree of lateral and torsional resiliency obtainable in no other coupling.

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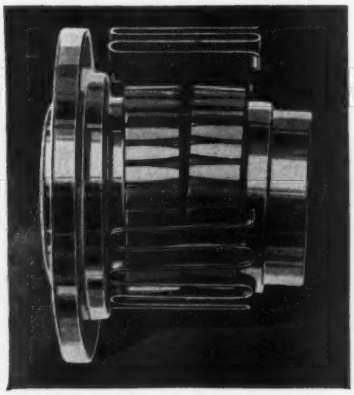

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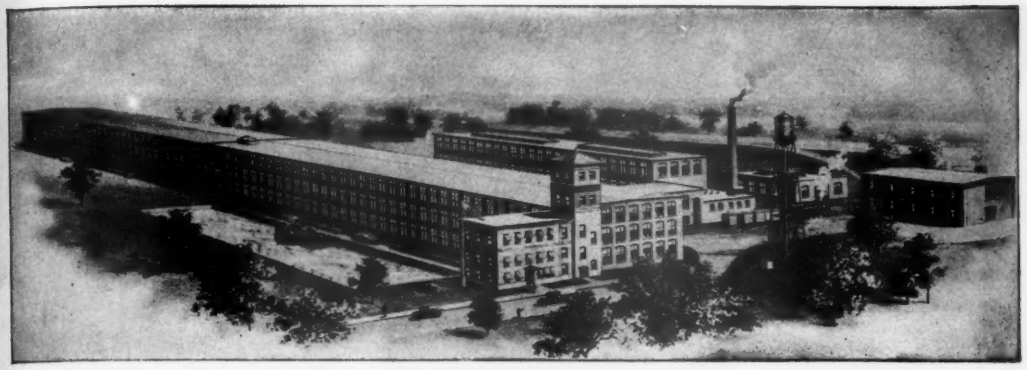
SPEED REDUCERS

When writing the FALK CORP., *please mention* PACIFIC PULP AND PAPER INDUSTRY



THE HOME OF ALBANY FELTS

Modern Felts for Modern Machines

With the conversion of pulp into paper growing more complicated every day, it is difficult to say what is the most important feature in the process. But it is generally admitted that the secret of good paper lies largely with the felts.

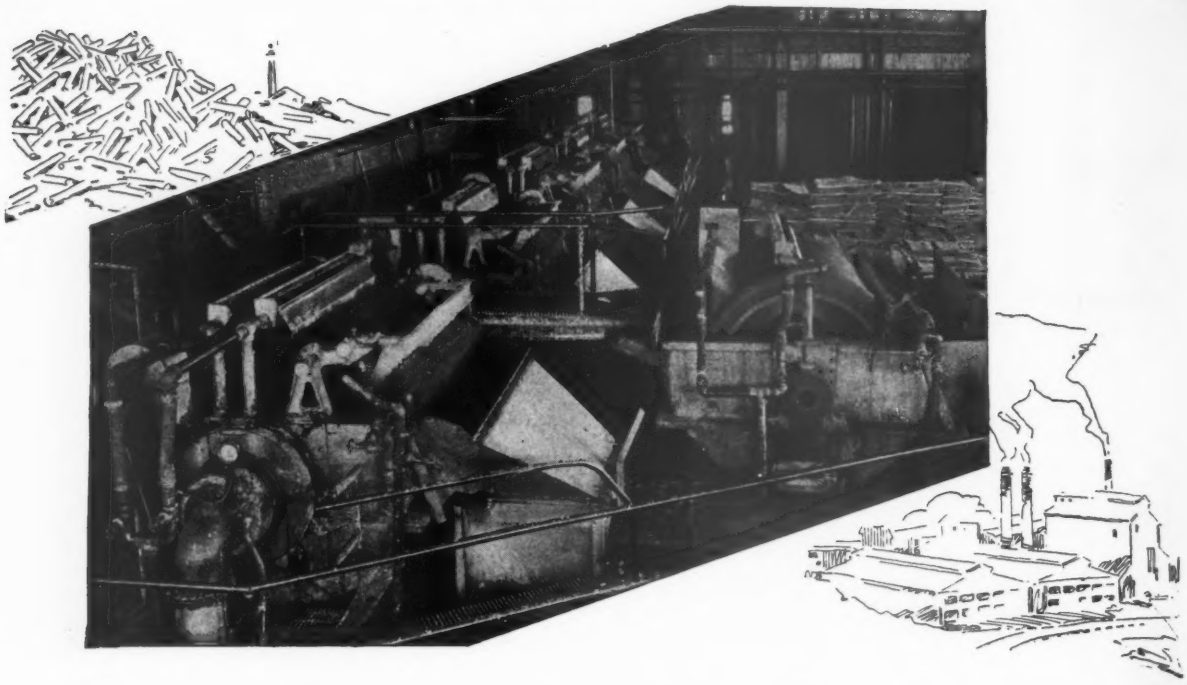
Every paper-mill man knows that, no matter what care is given the preliminary processes, his sheet will not have the proper qualities unless the right design of felt is adopted.

Our long experience in studying and interpreting the felt needs of individual mills has resulted in the creation of improved methods which are generally well in advance of common practice. In recognition of this, progressive paper manufacturers all over the country are consulting us constantly, giving us a greater range of experience and a broader vision, so that today Albany is one of the world's greatest felt makers.

Look to Albany for improved felt efficiency. And if you have a problem that is bothering you, we suggest that arrangements be made through us or our representatives to have one of our service engineers look the situation over.

Albany Felt Company

▶ ▶ ▶ ▶ ▶ ALBANY, N. Y.



Paper Companies Are Buying Oliver United Equipment . .

During the middle two weeks in May, the following orders came in:

From a company in upper New York State
one 8' 9" x 10' disc American Save-All to handle white water containing very slow filtering stock.

From another company in New York
one 8' x 14' Oliver Save-All on kraft stock.

From a company in New Brunswick
one 8' x 8' Oliver Decker for handling kraft stock.

From a company in Quebec
one 6' x 10' High Density Thickener for handling kraft.

In three cases, these are repeat orders, the buyers duplicating equipment in service. In the fourth case, the buyer has other Oliver United equipment, so in a sense it, too, is a repeat order.

Users of Oliver United equipment—through use—become well sold on it.

OLIVER UNITED FILTERS INC.

SAN FRANCISCO
Federal Reserve Bank Building

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33 W. 42nd Street

CHICAGO
565 Washington Blvd.

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HALLE, GERMANY — Wilhelm Lill
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RECIFE, BRAZIL — Ayres & Son
JOHANNESBURG — E. L. Bateman (Pty.) Ltd.

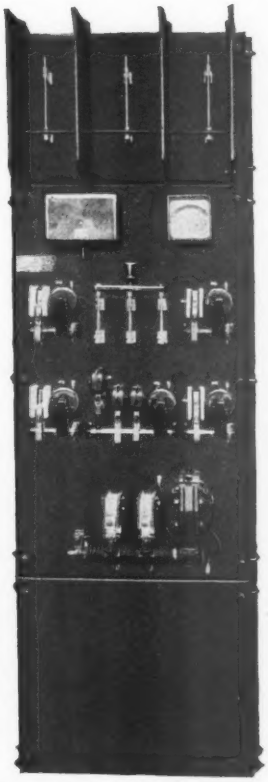
Now Ready!

DUAL-FREQUENCY SUPERCALENDER DRIVES
for all commercial voltages and frequencies

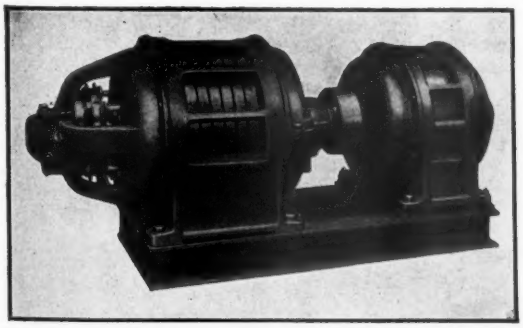
GENERAL ELECTRIC has produced a new type of low-frequency power generator, which makes possible the application of dual-frequency supercalender drives on all commercial voltages and frequencies.

The usual threading motor with its attendant gearing and overrunning clutch has been eliminated. Instead, one large a-c. motor direct-connected to the supercalender is used, low-speed operation for threading being obtained by operating this motor directly from the low-frequency generator. Normal operation is obtained by throwing the drive over to the regular mill power supply. It is also possible with this system to take advantage of voltages above 550 volts — the upper limit thought economically practical until now.

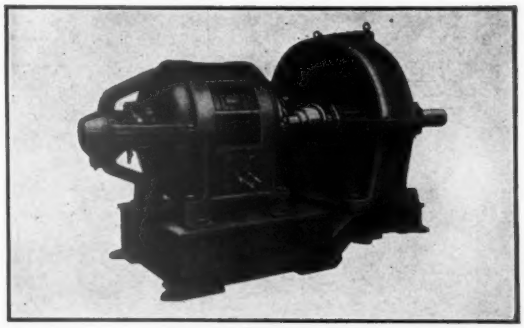
Inherent in this development are many distinct advantages of low first cost for group or battery operation, unusual flexibility, great mechanical simplicity, and reliability. All have been realized in an installation that has been in successful operation for six months in a large eastern paper mill.



G-E control for 2200-volt dual-frequency supercalender drive



G-E 40-kv-a. low-frequency generator set for supercalender drive supply



G-E 300-hp. supercalender drive

JOIN US IN THE GENERAL ELECTRIC PROGRAM, BROADCAST EVERY SATURDAY EVENING ON A NATION-WIDE N.B.C. NETWORK

200-493

GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

SKF equipped Moore & White Company paper making machine in the plant of the Dill & Collins Company, Philadelphia, Pa.

MEN WHO MAKE PAPER *KNOW* IT TOO!

IN A BEARING THERE'S NOTHING BUT PERFORMANCE THAT COUNTS

MEN who make paper know bearings. Paper, whether it is fine, coarse or just in between, *depends* upon bearings. Bearings are a part of the job... from pulp to finished product ... and SKF Bearings... invariably.

For in the bearings used in paper making machinery, performance is the only thing that counts. And that means SKF.

SKF Bearings are built for performance. Performance is the only excuse for their existence. Performance is the reason for their selection wherever the job is toughest or the going hardest. Such bearings as SKF are never built *down* to a price. They are built *up* to the job... always.

In a bearing, performance is the only thing that counts.

Think over this little morsel of horsesense when it comes to bearing selection and you are tempted by a lower price—"It costs more to replace a poor bearing than to buy the best bearing that SKF ever produced."

SKF Industries of California, Inc.

221 Eleventh Street, San Francisco
480 Burnside St., Portland, Oregon
1114 South Hope St., Los Angeles
2406 First Ave. So., Seattle, Wash.

SKF

BALL AND ROLLER BEARINGS

2714

WILLIAMS STANDARD PAPER MOISTURE TESTER

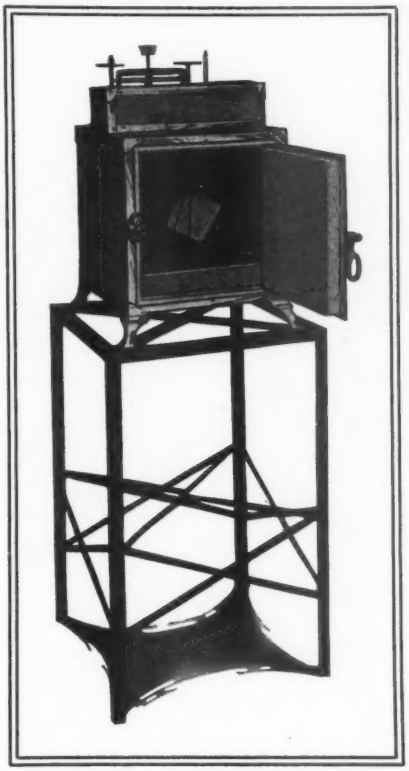
An Accurate Moisture Test of Your Paper in Ten Minutes

One Paper Company Has Bought 21 for Their Various Mills

Moisture tests can be made in your Machine Room by your Machine Tenders.

No calculations required. Accurate to .1 of 1%.

Tests all kinds of paper from tissue to board.



Hot samples weighed without removal from oven. No chance for moisture absorption during weighing.

Double-walled electric drying oven, with thermostat control.

Accurate scales with non-rusting agate bearings and beam graduated to read percent moisture directly.

Over-dried Paper Costs You More Dollars Per Ton and Dissatisfied Customers

WILLIAMS APPARATUS COMPANY

WATERTOWN, N. Y.

It's Control that Determines the Quality of Pulp You Get–

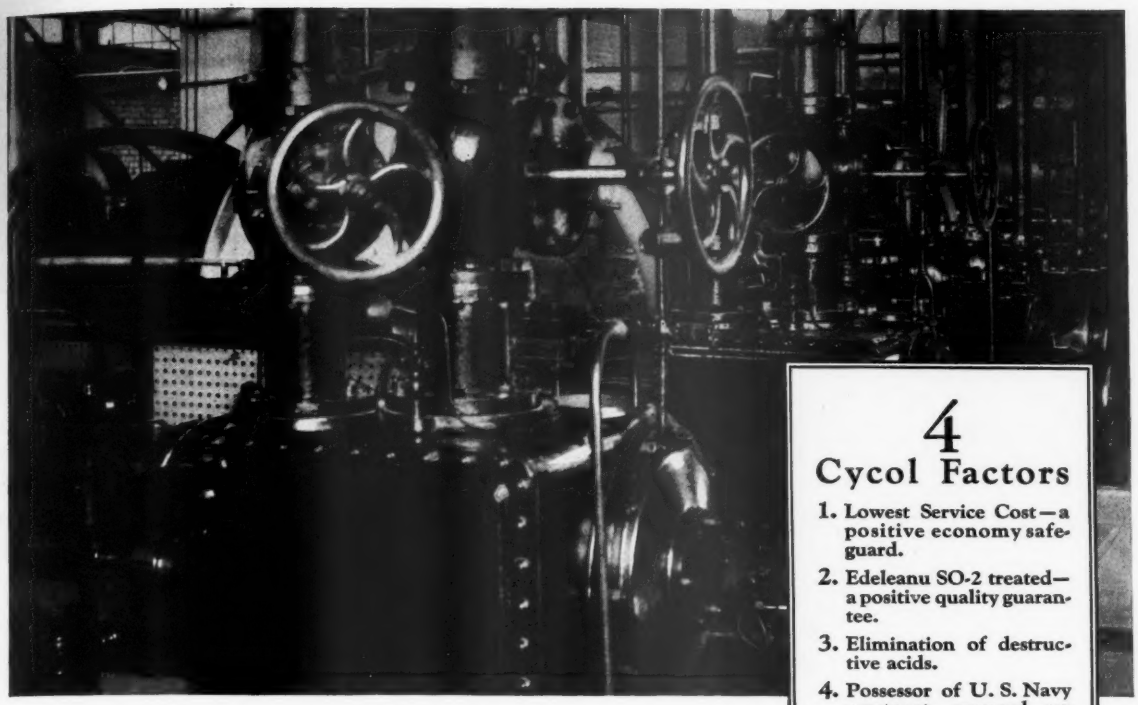
WHEN two mills take similar wood and one gets more stock of higher quality than the other, there's always a reason.

Mills throughout the country are using *Tycos* Instruments to increase their output of high quality stock. They have found that variation in temperatures during the pulping process affect their production as well as stock character.

Tycos Automatic Control on Grinders and *Tycos* Recording Thermometers on Digesters and Pulp Beaters are among the applications that are bringing improved results to the pulp mill.

Control with Tycos for Highest Quality

Taylor Instrument Companies
ROCHESTER, N. Y.
In Canada: *Taylor Instrument Companies* of Canada, Ltd., Toronto
Mfg. Distributors in Great Britain, Short & Mason, Ltd., London, E-17



4
Cycol Factors

1. Lowest Service Cost—a positive economy safeguard.
2. Edeleanu SO-2 treated—a positive quality guarantee.
3. Elimination of destructive acids.
4. Possessor of U. S. Navy contract, secured on Lowest Service Cost—not on Price alone.

Cut operating budgets with CYCOL

WHETHER you operate a fishing fleet, a lumber plant, a paper mill, wherever assured lubrication is at a premium—Cycol has a right to your preference.

Cycol is Edeleanu treated. That means this: the crude is cleared of impurities with SO-2, though most refiners use sulphuric acid. And *every bit of the treating agent is recovered after treatment!* There is no destructive matter left in the oil.

That's why you get *all* lubrication when you buy Cycol Oil.

That's why the Navy found Cycol Lowest in Service Cost. They tested Cycol—and other leading oils—on their own equipment. They compared the work factors Cycol set up with Cycol's price. They found that Cycol has Lowest Service Cost. They awarded a million-gallon contract for Cycol.

Greater endurance, unexcelled stamina and resistance to heat, low carbon, minimum maintenance cost, assured protection—that's what Lowest Service Cost means to you. Buy Cycol for your car. Buy it, too, for lubrication requirements wherever they occur. The Navy uses Cycol—so should you!

U. S. Navy buys Cycol

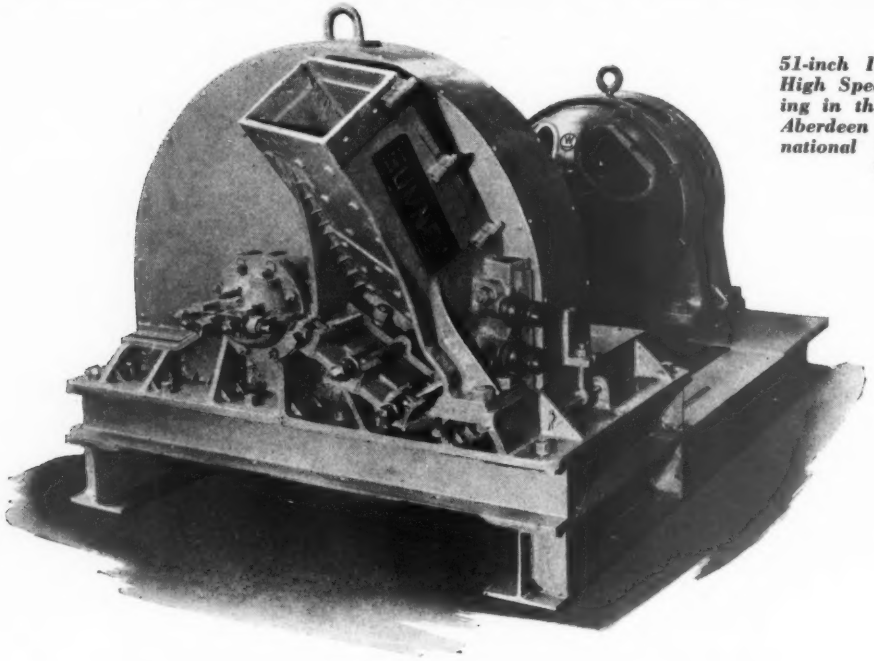
World's finest motor oil purchased for Navy's Pacific fleet requirements on sea and land and in the air.

Marine turbines, motors and dynamos, rotary pumps, diesel engines, reduction gear turbines, farm lighting outfits, motor cars, trucks and launches, air compressors, aircraft engines, high compression motor boat engines, motorcycles, tractors.

CYCOL

"Lowest Service Cost"

ASSOCIATED OIL COMPANY — SAN FRANCISCO



51-inch Improved SUMNER High Speed Chipper operating in the Schafer Brothers Aberdeen mill for the International Wood & Sulphite Company.

THE SUMNER HIGH SPEED CHIPPER

Has Greater Capacity ▲ ▲ ▲
Produces More Uniform Chips

SUMNER
Improved Woodroom Equipment

High Speed Chippers
Re-Chippers
Chip Crushers
Chip Screens—Shaker and Revolving Types
Norman Chip Duster
Slasher Tables
Cut Off Saws
Steam Splitters
Knot Saws Slab Barkers
Disc Barkers Hogs

These are but two of its many advantages over old style slow speed chippers. Performance records show the new SUMNER High Speed Chipper possesses these additional points of superiority—

Cleaner cut chips—facilitating acid penetration.
No tumbling of wood in spout—eliminating slivers.
Less sawdust and fewer oversized chips.
Less power consumption per cord.
Vibration greatly reduced.
Low in first cost and in upkeep.
SKF Bearings.

Built in sizes 32 inch, 51 inch, 66 inch, 84 inch, and 110 inch with either direct connected motor or belt drive.

ASK US FOR DETAILS ON THE
NEW CHIPPER'S SUPERIOR PERFORMANCE

SUMNER IRON WORKS
EVERETT • WASHINGTON

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INDEX OF ADVERTISERS

A Duty on Wood Pulp?

Is the domestic pulp industry in need of and would it be benefitted by the protection of a duty?

Would the paper industry in the United States as a whole benefit by a duty on pulp?

When a duty on wood pulp imports was specifically advocated at the meeting of the President's Timber Conservation Board in Washington, D. C., on June 10-11, PACIFIC PULP AND PAPER INDUSTRY put the questions above to a widely distributed number of prominent executives in the industry. Below is a cross section of answers received.

THE HINDE & DAUCH PAPER CO.
SANDUSKY, OHIO

July 2nd, 1931.

Your inquiry, "Is the domestic pulp industry in need of and would it be benefitted by the protection of a duty?"

There is comparatively a very small tonnage of pulp produced in the United States and sold as such far and way below its demand in the manufacture of container board, which requires a sulphate kraft pulp. That which is produced is converted from the slush into kraft liner competitive with the so-called jute board and is sold as kraft liner board with its lighter weight per thousand square feet. Even the present low cost of imported sulphate pulp when mixed with paper stock becomes hardly competitive.

An increase in tariff or an injection of the anti-dumping laws would virtually close the few operating board mills that are still in operation with little or no profit. The development in the manufacture of kraft pulp on the West Coast and in the Southern States has so aggravated the market on container board that, if sales are continued on the present basis, the importers will gradually lose their tonnage business of pulp without any artificial assistance.

The Paper Industry of the United States can not by any possible viewpoint benefit with a duty on pulp, for, while it may enhance the profits of the integrated pulp mills, it would only be laying on the consumers of board and paper a burden out of all reasonable ratio to the added profits of pulp production.

SIDNEY FROHMAN,
President.

SF-GES

DILL & COLLINS CO.
PAPER MAKERS
PHIDALEPHIA

July 3, 1931

A tariff on wood pulp is a question that cannot be answered without more data than we have at hand.

We believe in tariff to protect the American industries but in the present case the American pulp does not give us the result that we get from foreign pulp, and if it were shut out it would make quite a difference in the quality of the papers produced in this country, nor are all the qualities made in this country that are imported from Europe.

The President's Timber Conservation Board is misnamed—it should be called—The President's Timber Slaughtering Board, because the owners of woodland seem possessed to cut it down as fast as they can and give it away.

This opens a broad subject as to whether we should not conserve our wood supply, as it is not unlimited, and we understand according to statements in Washington, that pulp, as well as lumber, today is selling below cost.

GRELLET COLLINS,
President.
Dill & Collins Co.

GC/cvc

CONSOLIDATED WATER POWER & PAPER CO.
General Offices
WISCONSIN RAPIDS, WIS.

July 1, 1931

My company manufacturers and sells pulp. It also buys pulp. I am a Republican. I do not think a duty on pulp of any kind would serve any useful purpose.

GWM GEORGE W. MEAD.

RHINELANDER PAPER CO.
RHINELANDER, WISCONSIN

June 30, 1931

We are indeed—as are all other paper manufacturing companies producing their own pulp—very much interested in this question.

In answer to your first question, there is no doubt but that the industry is very much in need of and would be tremendously benefitted by a protective duty on imported pulp.

In answer to your second question, naturally there are two sides to this question. The mills on the Atlantic seaboard, and particularly those that do not manufacture their own pulp, are very happy to be able to buy foreign pulp at the prevailing low prices. When the entire paper industry of the United States is considered, however, we feel convinced that something must be done to protect the pulp industry of the country. We go so far as to say that unless some relief is forthcoming shortly, the entire pulp industry in the Middle Western states will peter out. We have heard several prominent paper manufacturers express the belief that within five years there will be no pulp industry in the Middle Western states if foreign countries are permitted to export pulp to the United States at prices which are $10.00 to $15.00 below the cost of manufacture in this part of the country.

Four or five pulp mills have already been discontinued in the state of Wisconsin. In the case of the Rhinelander Paper Company, it has been necessary for us to curtail our pulp production by 30 per cent and purchase foreign pulp in order to compete with Eastern mills using exclusively imported pulps.

When considering the large acreage of standing pulpwood owned by the Middle Western mills, it becomes a very serious question as to whether the paper and pulp mills can afford to carry this wood, in view of the low prices at which pulp can be brought in from foreign countries.

FOLKE BECKER, Manager.
Rhinelander Paper Company

FB/N

KALAMAZOO VEGETABLE PARCHMENT CO.
PARCHMENT, MICHIGAN

June 29, 1931

The Paper Industry in the United States as a whole would suffer by a duty on pulp. We purchase in the neighborhood of about 32,000 tons per year from abroad mostly Mitscherlich. Very little is made in this country.

What is true with our concern making waxing paper is true also with many others. Foreign pulp seems to be the best for this particular grade of paper.

We naturally feel that we must take the side of pulp duty free for the United States.

KALAMAZOO VEGETABLE PARCHMENT CO.
J. KINDLEBERGER,
President.

JK:HDW

THILMANY PULP & PAPER CO.
KAUKAUNA, WIS.

June 29, 1931.

I do not believe this is a question that can be disposed of through public prints, and as I am interested on both sides of this question I prefer at this time to make no statement.

I may say this, however, until the industry was over-produced in this country there was no need for any duty, nor none urged, and if because the industry is now over-produced, I very much doubt if a duty could be secured for that reason.

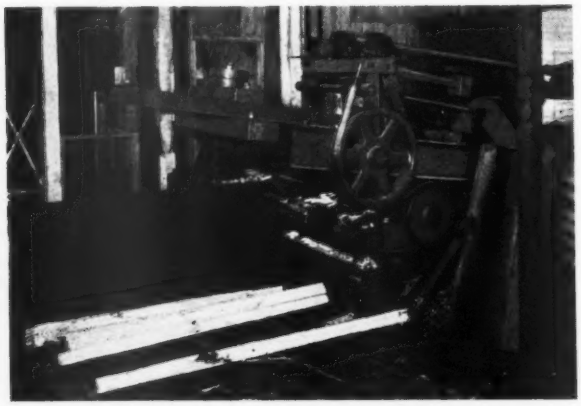
M. A. WERTHEIMER.

A New Chipping Plant

International Wood and Sulphite Company Develops Improvements in Sixteenth Unit

SPEAKING of unemployment, here's a story of enforced idleness which involves no sympathetic salty tears, no government aid, no political expediency upon which to hang soap box oratory. To the contrary, the story is one of more efficient operation, of values salvaged from waste, and of mechanical and business ingenuity. It's the wood refuse burner at Schafer Bros. Mill, No. 4, at Aberdeen, Washington, that has lost a job. Like many another burner which has been shuffled into the discard by Pacific Coast lumber mills in recent years there is none to mourn its loss.

For several years now the International Wood & Sulphite Co. has been starving wood refuse burners by building plants along side of lumber mill main refuse conveyors, selecting the best of these sawmill wastes for pulp chips and reducing the remainder to hogged fuel, thus causing the burners to expire for lack of nourishment. In all, the International Wood & Sulphite Co. has done more toward converting sawmill waste into commercial values than any other single organization in the West. The chipping plant installation at Schafer Bros. Mill, No. 4 in Aberdeen is the company's sixteenth installation. It was completed and placed in operation on June 1st.



Discharge side of the new Gruber barker showing cleaned slabs on transfer table enroute to chipper. A significant feature of this chipping plant is the efficient utilization of very small pieces of waste wood.

In its several years of operation the International company has steadily improved its technique but in the new unit it has made perhaps a greater and more radical improvement than ever before.

This latest installation differs from all others in that the wood is all barked by the International company's new patented automatic "Gruber Barker", a design developed by the company's own operating force. Evolution of the Gruber idea is a good illustration of constant study of a problem with a driving desire to improve. The design of the barker, its scheme of operation and its application to work of this character, was conceived by Joseph Gruber, one of the company's chipping plant foremen at Stanwood, Washington. In the development of the equipment to its present state of efficiency the company has fully cooperated with the strength of its organization.

Heretofore, hand barkers have been used in conjunction with a modified stripper and bolter of the lath mill type. This method was the best developed up until the time of the Gruber Baker. The criticism of the old method was that it was wasteful, in keeping with most present day wood cleaning methods, and required an excessive amount of labor for results accomplished. These well known factors lead to investigation, research, and experiments on the part of the company and its employes in an effort to bring about some radical improvement.

Greater Recovery

The efficiency of the new Gruber Baker is best illustrated by contrasting results with former methods. In actual commercial tests it has been demonstrated that with the Gruber Barker two men can bark 35 cords of refuse material in 8 hours, ready for manufacturing into chips for high grade bleached sulphite and all other grades of chemical pulp. In addition to materially reducing the ratio of man hours to cleaned cords, the company has substantially increased its recovery of chip volume for a given amount of waste.

In operation the slabs come up on a transfer table, operated by a foot controlled push button. One operator on the feeding side of the machine adjusts the barker for depth of cut according to the bark thickness of the pieces of wood coming to him. Four-foot slabs are used for convenience in handling.

The cleaned slabs and edgings are automatically discharged on to a transfer table, where each piece is

ON THE COVER THIS MONTH

The huge cone shaped refuse burners which have long stood as landmarks of the Western lumber industry are losing their jobs, one by one, as pulp mill takes its place beside sawmill in the Pacific Northwest, marking greater efficiency and more complete utilization of wood. Here is the old refuse burner at Schafer Brothers Mill No. 4 in Aberdeen, Washington, deprived of its "feed" since the installation of a chipping plant to work up sawmill waste into pulp chips and hogged fuel. In the foreground is shown the new belt conveyor passing right by the burner.

carefully inspected for any remaining bark and large black knots, before discharging to the chipper conveyor. On the discharge side a small planer-head type of hand barker is provided for touching up pieces containing these defects. Comparatively few pieces, however, require further cleaning except for knots.

Also bearing with prime importance upon the efficiency of this new chipping plant unit is the improved 51-inch Sumner chipper. This new Sumner unit is particularly quiet and efficient. The bearings are of the S.K.F. roller type, with the exception of ball-bearing thrusts. The chipper is directly connected to a 100 h.p. Westing-

Here is a hogged fuel barge loading at the end of the conveyor at International's sixteenth unit. Illustrative of the wood utilization efficiency is the fact that no fuel "hog" has been installed, the barker refuse mixing with the sawdust and planer shavings of the lumber mill to make good hogged fuel "as is".

house motor thru a special flexible coupling which protects both chipper and motor in the event iron or loose similar material should enter the chipper's throat and break the safety bar. The coupling permits the disc to slip away from the anvil and disengages the motor.

The company reports production of very high grade uniform chips with a noticeably higher yield from a given volume of clean slab wood. One factor accounting for this higher yield is the ability of the chipper to chip pieces of wood of varying dimensions down to small edgings of less than one-inch in square diameter.

Three Leahy type vibrating screens, with wire top cloths and lower plates of perforated steel have been installed in the Schafer unit to classify the chips. The screen installation conforms to what has practically become standard practice in the International company's chipping plants.

Material from the automatic barkers is ideal for hogged fuel, the company points out. Therefore, the sawdust and planer shavings from the sawmill proper have been segregated back in the sawmill and all discharge into a newly constructed belt conveyor, so that this material is combined with the automatic barker's refuse to make "ready made" hogged fuel. As proof of this point is the fact that no regular fuel hog has as yet been installed.

In consequence of this efficient utilization of waste the old refuse burner has been virtually closed down. The fuel is now being sold to the paper and power companies and other consumers in the Grays Harbor district. A chip conveyor 535 feet long has been constructed to lead immediately past the old refuse burner to a chip bunker where delivery can be made either to trucks hauling to the Grays Harbor Pulp & Paper Co., located about two miles away, or to railroad cars for shipment to other points. The company has 26 specially built railroad cars of the hopper bottom type, with cinder proof superstructure, in which it makes relivery to customers outside of the Grays Harbor district.

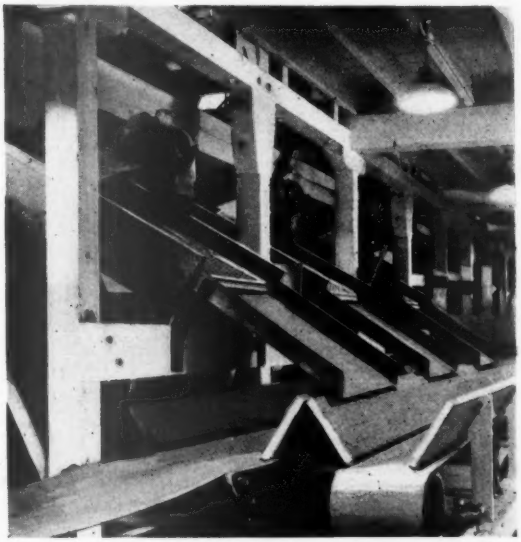
The motor trucks hold six units each and have canvas covers to protect the chips from cinders and foreign particles in transit.

This sixteenth and latest chipping plant is now producing about 130 units of chips per day. It is unnecessary to point out that to reclaim this amount of a commercially valuable commodity has developed a new source, and an important source, of revenue for the lumber mill, thereby injecting a new and important factor which bears directly upon production cost of finished lumber.

Schafer Bros. operate several sawmills in the Grays Harbor territory and have extensive logging railroad facilities which tap their own and other extensive timber holdings. This combination makes available to the International Wood & Sulphite Co.'s new plant a supply of raw material for many years to come.

Sweden's Pulp Exports Decline

Pulp and paper exports from Sweden during the first four months of the current year were generally lower than during the corresponding period last year, according to official trade returns. The heaviest decrease was in shipments of unbleached sulphite, which declined by nearly 90%. Reductions also occurred in shipments of kraft pulp and boards, which were 40% less than in 1930, and in mechanical groundwood, newsprint, and krafts wrapping, which declined by 20 to 25%. Bleached sulphite exports were nearly on a level with last year, while in sulphite wrappings and vegetable parchment and greaseproof papers slight increases were registered.



This Leahy screen installation in another plant of the International company is similar to that of the sixteenth unit at Schafer Brothers Mill No. 4, where three Leahy screens are in service.

Western Cellulose

A comparison of chemical and physical properties of Western pulps with those of other regions

By DR. E. RICHTER *

WE are continually asked, "Is our Western pulp different from Eastern cellulose?" It is of interest therefore to compile and compare at least some of the chemical and physical qualities and some of the experiences of the younger process with the older one.

Many decades of experience in the East and in Europe have given the mill operator, though not full chemical knowledge of his doings, yet confidence in his own work of sulphite making from spruce and balsam. His wood has certain average fibre length with varying but almost uniform amounts of cellulolse, hemi cellulose, ether extract, alcohol extract, ash and natural moisture. If we consider Western Hemlock as the typical species for our section we find that it contains about the same amount of resistant cellulose and gives the same yield per digester. It has a somewhat different percentage of hemi cellulose, much less pitch, and much more natural moisture.

One of most marked differences between unbleached pulp from Eastern spruce and Western Hemlock is the percentage of pitch left in the fibres. Whereas the former raw material leaves 1% or more rosin in the fibres the average hemlock pulp shows 0.3—0.6% ether extract.

For Rayon Use

Although alpha cellulose determinations of brown stcok are not made so frequently, the few results on hand for Western Hemlock point to about 85% which gives this material dominating cellulose qualities. From X-ray studies and from a study of regenerated cellulose from rayon processing, one may form the conclusion that the natural moisture to a large extent determines the physical behavior of the fibre. Western Hemlock grows with a high natural moisture content which probably means a more reactive and voluminous native fibre than is found in the East and in Europe. Using it for rayon cellulose its great reactivity, as I have found it, serves the purpose admirably.

Likewise it is obvious that care must be taken to preserve it for the papermaker. This leads us away from the less compounded form of rayon pulp with its lower viscosity to the highly polymerized substance desired as paper raw material. The wishes of the practical paper makers are about as numerous as the proverbial pebbles in a sand cliff and the variety of beating and other testing equipment in paper mills does not permit us to base discriminating results entirely on apparent practical results.

To find a physico-chemical test that would define qualities not checked by ordinary strength testing apparatus, attention in previous† studies was called to a certain procedure for the copper number. It was found that within certain limits the following formula applied:

$$\frac{\text{Strength} \times \text{freshness}}{\text{copper number}} = \text{constant.}$$

From a large number of experimental values, I am convinced that the copper number is first of all a purely physical expression of capillary action. The copper compound is accumulated in the micellar ducts and reacts with certain valences which simultaneously govern strength properties. Roughly one may say: The more micellar ducts with open valences, the higher is the copper number and the lower the value of the pulp, at any rate, whatever the outcome of further practical research will be, we have at present the commercial proof that the copper number is intimately connected with strength properties and besides that, we are at the beginning of a real understanding about it.

It is, no doubt, due to the activity of some of the smallest particles of the fibre, eventually resulting in the latter's cohesion to a certain amount of water. These experiences and facts in turn allow us to evaluate the technical product with greater safety than we are able to feel, if we try to establish relative values with large agglomerations of micelles or fibres without going down to the root of all strength, to the molecule or at least, the micelle. Besides these large agglomerations of fibres, with very few exceptions, never occur in a paper mill in the final sheet forming state.

Of Equal Quality

Numerous examples could be given with reference to the evaluation of the different pulp mill processes beginning from the very source of raw material, the wood, down to almost pure cellulose, but it would involve too much time, not available at present. It may suffice to state that using the experience thus gained on commercial products, **it was found in many comparisons that European and Eastern pulp and cellulose are in no way superior to our Western products, provided the latter are manufactured with due consideration of the peculiar qualities of the wood and the processes applied to it.** No question, in some cases the goal is set high but the higher the better. With good cooperation we are prepared to meet any competition as to various and reasonable requirements.

*This article is an abstract prepared by Dr. H. K. Benson, Department of Chemistry and Chemical Engineering, University of Washington. The complete paper was read by Dr. Richter at the Spring meeting of the Pacific Section of TAPPI, held at Everett, Washington, on April 18 and 19, 1931. Dr. Richter has asked that due credit be given to Dr. Benson for his cooperation in making the studies.

†Paper Makers Monthly, July-Dec., 1930; also Pulp & Paper Mag., Canada, Sept., 1929; Nov., Dec., 1930.

PULP SLIME

its structure and cause

By T. D. BECKWITH, Department of Bacteriology,
University of California, Berkeley, California.
(In collaboration with the Research Department of the Great Western Electro-Chemical Company)

Here is a common sense article about a little known subject which is occupying the attention of pulp and paper mill operators these days. Shorn of difficult technical language, it is written so as to be understood by the chemist and non-technical executive alike. Just what is slime? Mr. Beckwith enlisted a microscope to find out, and in this article tells of those findings.—Editor.

THE occurrence of slime in various stages of the manufacture of pulp for paper stock constitutes a problem of increasing magnitude. The effects of slime growths within pulp mills are well understood and indeed these are to be held accountable for a variety of difficulties. Holes characterized by burnished and shiny margin are produced within the finished paper. In addition, accumulation of this thinly gummy material dispersed throughout the stock in finer particles injures the texture of the paper and is said even to interfere with proper sizing. It is reported that the presence of slime also furnishes cellulose digestion with the result that there may occur actual loss of stock. A certain degree of doubt may be cast upon this last mentioned claim.

Due to heightened efficiency in the more modern mills, there is a tendency to continue the various processes more constantly and to utilize water repeatedly. The use of a closed system in water circulation for purposes of water conservation, and this continued period of operation with fewer intermissions, while laudable from the point of view of economy, are measures which nevertheless further certain difficulties.

Purpose of Study

A closed water system does not allow microorganic accumulations such as pulp slime to be flushed out so readily with the result that now increasingly it tends to become a cumulative factor. Eradication thus becomes increasingly burdensome. Operation procedures which are not attended with interruptions do not allow periods when equipment may be cleansed properly. The results of these two factors relative to increased efficiency are that pulp slime proliferates with greater rapidity unless measures looking towards its adequate control are instituted.

The purpose of this study about to be described was to determine, if possible, the cause of pulp slime and also to ascertain certain facts dealing with its derivation and mode of growth.

There have been many assumptions concerning the nature of the cause of pulp slime. Most of these guesses have been based upon the logical idea that some microorganism is causative but such hypotheses have not been founded upon experimental evidence. Therefore, they cannot be considered authoritative. Algae, which are green or bluish green plants of varying size thriving in water throughout the world, have been stated to be the origin of the mucilaginous mass.

Other writers have been of the opinion that molds, which are called fungi by botanists, are the real offenders. Still others have incriminated the yeasts which, after all, should be included scientifically among the fungi. Bacteria which are the source of so many troubles in other lines of industry, have likewise been implicated here. Thus all of the micro-organisms, with the exception of the protozoa which are microscopic animal life, have been included in this ever enlarging circle of suspicion.

We all know that the simplest method of examining a substance is to look at it with the eye but if we examine pulp slime, we shall see merely a mass of grayish white material which appears to be gelatinous. Evidently, if we are to determine the structure of this somewhat gluey stuff, the eye must receive aid of the microscope. One must utilize the oil immersion objective and the portion of slime which is thus to be viewed must be stained according to certain technique used ordinarily by the bacteriologist. Magnification should be of the order of 1,000 diameters or 1,000,000 times.

Through a Microscope

But let us look down through a microscope properly equipped at such a stained slide of pulp slime. The greatest portion of the mass is made up of unorganized material which is cellulose from wood fibre and of suspended dirt particles. Mixed throughout this rather formless structure are many very small rod-shaped bacteria. They are the most prominent cells here. These are small cylinders which may hang together in small chains and each rod is two or three times as long as it is thick. Some of them are rather irregular in shape too, and thus show a condition which is known to the bacteriologist as pleomorphism.

There are a variety of kinds of bacteria present here but the major portion of them show certain characteristics which appear to place them in a certain group. If one note carefully, one will see also that the bacterial organisms do not tend to lie together in clumps but rather, there is a minute distance between the filaments. Evidently there is something which keeps them apart.

In addition to the bacteria which are to be seen in this microscopic field, there are likely to be present a few threads of molds together with an occasional spore of these forms. One of the commonest types of fungous spore found in pulp slime has the shape of a long and thin crescent. It belongs to a genus of the fungi known as Fusarium. Now and then one will find a few cells of unicellular green algae together with an occasional yeast. Single celled animals known as protozoa

are well nigh absent. The bacteria are by far the most numerous living elements found within the miscroscopic picture of pulp slime.

If slime is caused by a bacterial organism, then one should speculate first as to the structure of pulp slime and second as to certain probable food requirements of the organism to be implicated.

In consistency, a slime is gelatinous to the touch. It feels and is slippery. To one expert in the science of bacteriology, it reminds one immediately of certain mucilaginous structures which are built up by some varieties of bacteria and which are known as zoogloeas. Such a soft and slimey mass comprises the coatings which surround some bacterial organisms and result from the life processes of these bacteria. Such slime bacteria are not at all peculiar to the pulp industry but are found widespread in nature. Good examples are to be named among the bacteria which construct mother of vinegar and those which cause milk sometimes to become stringy. Many other examples might be cited but these are sufficient for the purpose at hand.

Additional evidence that bacteria are at the bottom of this difficulty of the pulp industry which we are now discussing is the fact which we have noted earlier wherein it was stated that the bacteria seen in a stained microscopical preparation of pulp slime do not occur in closely compact clumps but rather seem to be separated by a slight distance from each other. Thus, there must be something which acts to keep them separated. This tendency not to come together readily in masses is due to the gelatinous layer which surrounds each one of them.

Similar to Sugars

This outer capsular covering which some bacteria have and which is mucilage like in character has certain characteristics of chemical nature. The biological chemists tell us that these bacterial gums chemically are constituted of certain portions which are closely similar to sugars. Indeed, such portions of their makeup are sugars as proven by technical examination. Moreover, bacteriologists have proven that bacteria which are capable of producing these bacterial gums are stimulated to maximum endeavor by feeding them with sugars. It appears sure then that sugar which is known to the scientist as carbohydrate must be a most necessary item of food, may be most important, if one is to endeavor to cultivate bacteria which can produce slime.

Indeed, the presence of sugar can be proven in pulp as well as in white water by means of Fehling's Solution, the customary and very sensitive reagent for sugar. This naturally points the way to a suitable medium in which bacteria can be cultivated from slime and a series of attempts were made to do this from fresh slime samples collected by field men of the Great Western Electro-Chemical Company in the various pulp and paper mill circuits. Within two to three days from the beginning of these preparations there will become evident a variety of organisms in colony formation.

Among these, although not in pure culture, are certain colonies which, if allowed to continue to grow, will become 10 to 15 millimeters in diameter and which are characterized by a slimy consistency. Their color will be slightly yellowish or grayish and growth is very persistent. Mixed with these bacteria is a variety of organisms which will be found constantly over a series of examinations and which constitute in part what appears to be a bacterial flora characteristic to white water. In many instances these additional organisms far outnumber the slime producers.

The bacteriologist has certain standards by means of which various kinds of bacteria are described. These tests which are of major technical importance depend upon the ability of a form to make use of different types of sugars and protein containing materials. These, together with the morphology or shape are all entered under various headings and sub-headings and thus formulate what are called the cultural characteristics of a germ.

To enumerate these technical differentiations is probably not within the scope of this discussion but a photomicrograph of the bacteria which build the slimy colony is included as Plate No. 2. A microscopic examination made with proper precautions and with high magnification shows the presence of a capsule surrounding the bacteria. Thus, they are slime producers.

Proof of Contention

The real proof that some particular factor can bring about a result lies in demonstration that this really does happen. The irrefutable proof that this germ can cause sliminess of pulp under controlled conditions consists in doing it in such a manner that the eye and touch for themselves perceive it. We have succeeded in causing slime to appear upon and in pulp when inoculated with this organism. To do this however, is a highly technical procedure and to give the necessary technical details is beyond the scope of this paper.

Possibly one may care to question the assertion that the cause of pulp slime is the bacterial organism which has just been described on account of the fact that it has been stated that in many instances, there is a multiplicity of other kinds of bacteria present. One may feel that the organism which produces the effect should be the one which is there in greatest numbers.

This objection may be met by the following line of reasoning. As the slime producing bacilli multiply and thus build up this structure of bacterial gums which constitute the bulk of the jelly-like mass, other bacteria are constantly being swept by the flow of water against this sticky structure and some of these will become entangled within its meshes. They do not die and indeed some of them appear to adapt themselves to this new abiding place to the end that they grow along with the slime formers and now our natural culture within the pulp slime is no longer made up of one kind of bacteria but rather there are many varieties which are included in the clinging structure.

It's the Water

Moreover, many of the bacteria which have been instrumental in making the slime after a time die out and leave their gum accumulations behind them for they do not individually have a long span of life. So it comes about that in many instances, the number of slime-producing bacteria in slime is relatively small when one considers the total number of kinds of germs which which may be isolated from slime.

It became advisable early during this series of experiments to search for this organism in water from various sources. Some of these were the white water systems of pulp mills and other water samples taken from water supplies of the various Northwestern pulp mills. Repeatedly it has been possible to grow these bacteria from these waters by means of certain enrichment processes. **We have proven that water is a source of pulp slime bacteria and doubtless it is their main origin.**

Question very naturally is immediately raised as to other possible sources of these bacterial organisms which have been proven to be a cause of pulp slime. There are two opinions here. One group incriminates water as the cause of the difficulty while the other believes that the cause of the sliminess is to be found within the wood itself. Let us see if we cannot bring light to this point of discussion.

As has been outlined previously, there are fairly accurate methods which have been elaborated whereby one can escertain whether this slime producing bacteria is present within water from an outside source or from the closed system of a pulp plant. We know that the form is frequently found within the water. There remains then the attempt to show that these capsules forming germs are likewise present within wood. If that can be done then it has been shown that there is a two-fold source for the difficulty, namely water and wood stock.

We shall proceed as follows. If a sound pulp log be sectioned with a saw under careful precautions, then portions of the log from near the outside where the water has penetrated may be compared bacteriologically with similar portions removed from near the center where water from the pond or river has not yet found its way. The bacterial flora of these two areas will be found to differ markedly. Slime producing bacteria are readily isolated from the water-soaked section of the log but are absent in that portion where the outside water has not so far arrived. The organisms, moreover, are to be discerned in the water of the pond in which the log has been floating. Thus it appears that **the source of these bacteria is water rather than wood.** Mehods of control then concern water primarily.

Other Bacteria

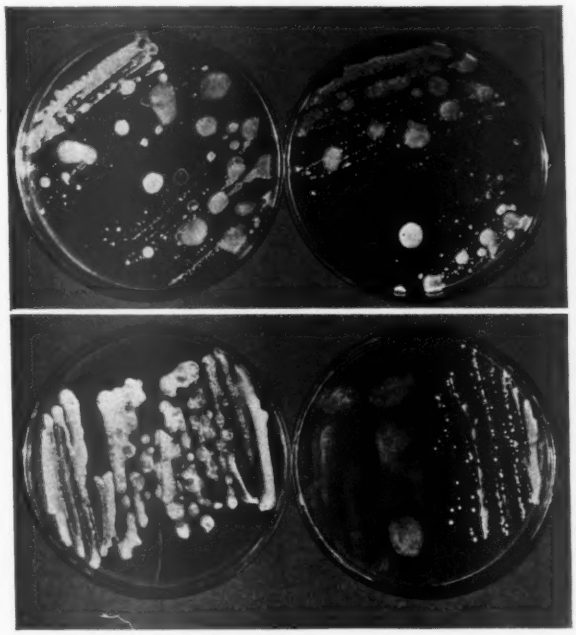
At this point it is well for us to add that in spite of assertions which often appear in scientific literature dealing with the pulp and paper industry and which state that pulp slime destroys cellulose and thus decreases the stock, we have not been able to show that these slime producing bacteria which have just been described have any power to destroy cellulose fibre. They have no enzymes or ferments in their make up by means of which they can split cellulose chemically. Pulp slime of itself therefore does not destroy fibre.

On the other hand, there are many varieties of bacteria which are endowed with this power and it is safe to assume that some of them which are found in water readily become incorporated with the mass of the pulp and therefore give an added industrial risk to the presence of the slime. All of the usual methods which are followed in usual practice by bacteriologists for the purpose of detecting ability to break down cellulose by bacteria have been applied here to these slime producers and all of them have given results entirely negative in character. **To repeat then, slime does not destroy pulp cellulose but it is very possible that other kinds of bacteria which become attached to slime as it grows may be able to do this.**

With the foregoing facts as basic observations, it seems that pulp slime is formed in the following manner in the northwestern United States. The capsule or slime building bacteria proliferate at any convenient point of attachment within the white water channels and are transported there by white water. The temperature of the white water is a limiting factor for growth and subsequent sliminess cannot take place in a location which is too warm. Twenty-eight to 40 degrees is the optimum range although multiplication take place more slowly at lower temperatures.

The sugar or carbohydrate content of the water due to the effect of certain chemicals used in process of manufacture in their action upon cellulose stimulates formation of bacterial gum. Evidence of the presence of sugar in solution at the spot where slime is forming is advanced by the presence of a few yeast cells here also. With the formation of this mucilaginous coating, floating bits of cellulose and detritus become entangled in the mass.

Many other varieties of bacteria which are carried mechanically by the white water likewise become enmeshed in the gluey structure and some of these outsiders can multiply here with the consequent result that the slime formers are soon outnumbered. Algae and fungi become trapped likewise in the mass as it grows. **The source of these destructive bacteria is the water supply of the mill, but it must be remembered that any initial accumulation of slime within a plant immediately becomes a focus of infection which readily may become scattered to the other portions of the same plant.** Since this is an infection and since it is borne by water, **the logical point of attack upon it is treatment of water.** Basically, therefore, it is a water problem and one which requires constant and careful attention.



Colony formation of slime producers made directly from slime. Note the large spreading growth. For contrast, there are no slime producers on the right half of the lower right hand plate.

As a result of this research the Great Western Electro-Chemical Company's Laboratories have made intensive studies of chloramines as the most effective agents for elimination of slime. Installations already completed by Great Western Electro-Chemical Company, operating under actual mill conditions, are demonstrating the pre-eminent practicability of chloramines for slime control.

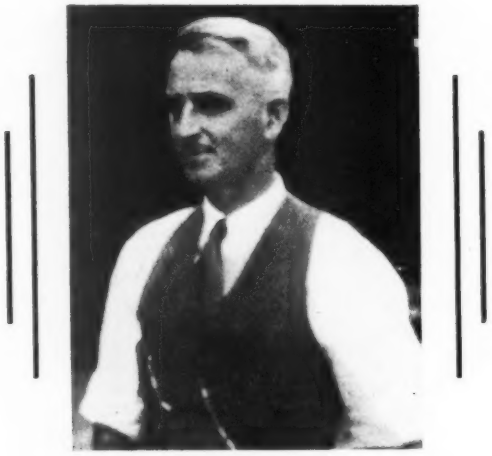
Complete data is being kept on these practical applications and doubtless will be released in a subsequent article.

Pomona Mill Using Closed Water System

Those who are familiar with the deep dry sand characteristic of Southern California's "rivers" need not be told that water is more than an ordinary problem in the day of the paper manufacturer of the Los Angeles territory.

Altho surface water is not to be had, suitable supplies have been found beneath the surface, to be brought into commercial utility thru the employment of deep well turbine pumps.

Some 25 miles out of Los Angeles the California Fruit Wrapping Mills operates a two-machine fruit wrap tissue mill catering to the citrus fruit belt of the



Charles Frampton, General Superintendent, California Fruit Wrapping Mills, Pomona, Calif.

vicinity. Nowhere, it is believed, does a mill get closer to its consuming market than at Pomona, for it is gospel truth that an orange grove is thriving on the ground immediately adjoining the paper mill property.

Within recent months the Pomona mill has constructed a settling tank and impounding basin and placed the mill water supply on a closed circuit basis. At the same time a system for chlorinating and treating the water was installed.

By means of a float the water level is maintained at a constant level, a deep well turbine pump being thrown on to make up water losses as required.

The entire system requires practically no attention. In addition to reducing the total amount of water used in the mill, the management has inherited other benefits thru the installation of the water treatment apparatus. The mill system has been gradually cleaned up thru chlorination and slime problems have been eliminated. An easy test of the latter may be made by feeling the concrete sides of the settling tanks. These show a remarkable absence of slime.

Other benefits are expected to demonstrate themselves as further operating experience data becomes available, such as increased life of felts and wires, better formation, etc.

Altho the mill makes colored tissues it has encountered no difficulties in re-using water which is tinted.

L. R. Wood, formerly resident engineer at the St. Regis Kraft Company's 160-ton kraft pulp mill at Tacoma, Washington, is now in Omaha, Nebraska. The St. Regis mill is at present closed for an indefinite period.

Sumner to Build Weyerhaeuser Wood Room Equipment

The 150-ton bleached sulphite pulp mill of the Weyerhaeuser Timber Company now under construction at Longview, Washington, will have a wood room designed to be particularly economical with wood. A number of new ideas have been worked out by the Weyerhaeusers in collaboration with the Sumner Iron Works of Everett, Washington.

Last month an order was placed with the Sumner company to manufacture practically all of the wood room equipment. This will include two 110-inch chippers, and one 84-inch chipper, all three of which will be belt driven, four shaker screens, a chip crusher and a wet machine.

The two larger chippers are the first of their size to be manufactured by a Pacific Coast equipment firm.

The wood room has been designed to work in close conjunction with the big lumber mill which Weyerhaeuser operates at Longview. One of its principal functions will be to work up the quantities of sawmill waste incident to lumber cutting, from which can be reclaimed an immense volume of sound pulpwood.

On the staff of the Sumner Iron Works are men who have a sound practical experience in pulp mill design and operation. Co-operative study of the wood room problem between Sumner and Weyerhaeuser resulted in the former being commissioned to equip virtually this entire department on the new mill.

Columbia River Reports Earnings

Columbia River Paper Company, holding company for the Leadbetter paper mill interests, including Oregon Pulp & Paper Company at Salem, and Columbia River Paper mills at Vancouver, Washington, stated that first-quarter earnings were considerably in excess of profits for the like period of 1930.

The Salem mill earned $129,157 in 1930, after interest charges and a depreciation reserve of $201,070. In the same period Columbia River Paper Mills earned $137,931 after interest and depreciation. Both companies paid dividends on their preferred stocks, the total disbursements being $124,000.

In the first quarter, of 1931 Columbia River Paper Company of Florida, subsidiary of Columbia River Paper Company, earned $11,662, and California-Oregon Paper Mills of Los Angeles earned $5179, F. W. Leadbetter, president, said.

Calcutta Commissioner Comments on Review Number

The U. S. Trade Commissioner at Calcutta, India, writes as follows:

"The 1931 ANNUAL REVIEW NUMBER of the PACIFIC PULP AND PAPER INDUSTRY contains much valuable information and will probably prove of frequent assistance in answering inquiries, which we may receive.

"As you probably know, American exports of paper and paper manufacturers into India account for only 92.299 cwts.. valued at $287,425 of the total 2,740,000 cwts. valued at $13.-538,595 imported from all sources. Only American Over-issue newspapers, high-grade bonds, envelopes and blotting paper seems to sell in competition with English, Continental and domestic paper manufactures in this market. This is due to the tariff preference given to paper produced in domestic mills and the cheap prices quoted by English and Continental manufacturers.

"We are not, however, discouraged with the existing situation, as we believe that there is some possibility of American paper manufacturers getting a larger share of the business in this country in years to come."

A dredge has started working to improve the lighterage waterway west of the deep water docks of the Puget Sound Pulp & Timber Company's mill at Everett, Washington.

Importation of Russian Pulpwood

By GEORGE W. HOUK*
Executive Vice-President
Hawley Pulp & Paper Company

IN an effort to discuss some of the angles of Russian pulpwood importation, there will be no attempt to recommend any particular policy that should be followed by the paper manufacturers either on the Coast or in the United States at large. A great deal has been written and said on the subject in the last six months, and I enjoyed hearing both sides of the argument in New York in February when M. S. Makodzub, of the Amtorg Trading Corporation, told his side of the story, and W. R. Brown of the Brown Company, Berlin, New Hampshire, told the other, before the membership of the American Paper and Pulp Association.

I first want to say that my remarks should not be considered as an expression of sectionalism as far as paper manufacturing in this country is concerned. We are in a logical but embarrassing position and I shall attempt to put the problem to you as a question or a series of questions, and not as an answer regarding the attitude we should take.

The first important point that we must admit and realize is the fact that if Russian pulpwood continues to be permitted by the Treasury Department to be brought into this country, it will prolong the period of over-production of pulp and paper industry by enabling high cost mills which might otherwise withdraw from active competition to continue when their normal raw material source of supply disappears.

There is no question but that the importation of Russian pulpwood would retard the progress of the westward trend of the paper and pulp manufacturing industry. Great foresight years ago prompted certain paper manufacturers to build mills on the West Coast because of the availability of a vast and almost eternal supply of pulpwood direct from the forests or as a waste product from the gigantic lumber industry.

Eastern Wood Shortage

C. O. Brown of the International Paper Company has gone so far as to think that one hope in connection with the maintenance of the northeastern paper mills would be to throw open the beautiful Adirondack Forest for the lumber and paper mills of the territory. He says that "according to the statutes of New York, this timber cannot be cut, and is therefore an economic loss to both the state and to the taxpayers, as well as to the pulpwood consuming industry of the region." He further admits that the paper manufacturers there will continue to be dependent to a greater and greater extent on the foreign sources of pulpwood.

Allen Abrams, of Marathon Paper Mills, goes further in saying that if one looks well into the future, and particularly from an economic viewpoint, it is apparent that the pulp and paper mills in the Lake States will be confronted with the problem of moving or going out of existence.

*An address delivered at the annual meeting of the Pacific Coast Association of Pulp and Paper Manufacturers, Del Monte, California, May 13-16, 1931.

I say again that we must realize that permitting Russian pulpwood to be brought to the New England mills will slow down the speed of the paper manufacturing center movement westward. It will also delay the day when those manufacturers will turn to the Coast for their supply of pulp. We must further admit that the importation of Russian wood products will keep the United States lumber industry in a depressed condition for a longer period of time, which will reflect directly on our own industry.

It is true that, as Ossian Anderson of the Puget Sound Pulp & Timber Company says, the price of merchantable saw logs will always affect the cost of pulpwood, and when lumber and log prices are down, the cost of Coast pulpwood is down with it. At the same time, low production means business depression and fewer circulating dollars, and we must realize that in Oregon and Washington particularly, if the lumber business is not prospering, there is little prosperity for anyone else.

The uselessness of all government thumb twiddling, of drafting rules and regulations as purposefully full of holes as a gravel screen, is found in the story read between the lines of the news brief presented below. The reason that Russian wood continues to come in is because SOME FEW SELFISH INTERESTS WANT IT IN AND EXERT PRESSURE ACCORDINGLY.

Washington, July 1.—(A.P.)—In the absence of evidence that it was produced by convict labor, a cargo of Russian pulp wood was ordered admitted to the United States.

The decision was rendered by Assistant Secretary Lowman of the treasury after M. S. Makodzub, vice president of the Amtorg Trading Corporation, the official Russian commercial organization, had emphatically denied that forced labor was involved.

M. J. Flynn, of the American Federation of Labor, and C. W. Blair, of the National Lumber Manufacturers' Association, urged the lumber be excluded. Bahr insisted convict labor was used in the Russian forests.

The Amtorg official presented affidavits from Russian officers deposing that convict labor had not been used in production of the cargo involved.

To look at the moral and economic reasons for opposing the importation of Russian pulpwood, we must appreciate the fact that the United States Government refuses to recognize the U. S. S. R. Among other reasons were their breaking at will international agreements, and because of their failure to return to United States citizens some $750,000,000 after the 1917 revolution.

That there is actual convict labor in the preparation of Russian pulpwood is gravely doubtful. That there is forced labor, there is a question, depending upon the interpretation of the word "forced." Everyone knows

the saying in Soviet Russia, "he who does not work shall not eat." The people of leisure are less than 5% of the population. The rest are governed by that economic law.

The U. S. S. R. has a national economy which is ruled, managed and planned from central headquarters, and the plans are made not to accommodate particular social groups. They are made, moreover, with an eye more to the future of the country than for her present. In certain regions there arises some surplus of population. At the same time industrial or agricultural developments are springing up elsewhere. The task is to shift the population in accordance with the great economic plan, and this is where the confusion arises in connection with the labor of exiles, or forced laborers.

GEORGE W. HOUK,
President
Pacific Coast
Association
of
Pulp and Paper
Manufacturers

Boye Portrait, San Francisco

Makodzub tells us that these men who because of the plan are shifted from one section of the country to another, for eight hour days receive the same wages as members of the Union, benefit from all kinds of social insurance, and as a matter of fact have a right to become members of the labor union.

Washington's attitude has changed several times on the pulpwood question, and recently a shipment of pulpwood was allowed entry because it could not be proven that the pulpwood was manufactured by convict or forced labor. At times editorially and conversationally the amount of wood brought in is exaggerated or over-estimated. During 1929 only 10,500 cords, three cargoes, were landed in the United States, and in 1930, 238,000 cords, less than six million board feet, 14% of their total pulpwood exports, which included shipments to Scandinavia and Continental Europe, and as Barron brings out in the issue of January 12, 1931, less than one-half of one per cent of the total pulpwood imported to the United States. From Canada we received approximately 1,300,000 cords per year alone.

We do face the problem that if Russian competition continues, lumber prices and pulpwood prices in this country will be reduced to a point that timber property values may shrink to the startling figure of 21 billion dollars in the United States. This statement is made by Mr. Brown of the Brown Company who maintains that Russian competition in Finland and Sweden has brought down the price of pulpwood $1.50 per thousand board feet in those countries.

At the same time, we must consider whether it is better to receive pulpwood from Russia or find ourselves competing with Russian paper exported to this country. Under the five year plan, their ideas are to distribute pulpwood to the world markets rather than vast quantities of paper, although nine paper mills are planned during the five year plan.

Concerted effort by the papet industry in this country to check the importation of Russian pulpwood has to date amounted to practically nothing. There are so many sides to the question that the American Paper and Pulp Association has not yet definitely committed itself one way or another. At the present time it is on the fence and has been accused of adopting this policy because some of the members are determined to bring in Russian pulpwood as long as they can save money by lower prices, or obtaining higher quality; while other members are radically opposed to bringing in Russian pulpwood under any circumstances. Because of this situation, it is logical and wise of the National Association to maintain a neutral position, but it is up to the individual mills who have definite feelings one way or another to band together in their common cause whichever it might be. What the future holds in this regard no one can tell, but we must admit a moral obligation to decide conclusively where we stand for the ultimate good of our industry and our country.

Note—The Chair appointed M. R. Higgins, Crown Zellerbach Corporation, who is familiar with this situation, to draw a resolution to be submitted at the next meeting for vote. The Chair expressed the hope that in the meantime conscientious thought will be applied by the members on this subject.

The Sulphite Market

Last Fall, it will be remembered, the North European sulphite producers agreed upon a 15% curtailment of production in 1931. Some rather rigid rules accompanied the agreement to enforce curtailment.

Apparently this reduction in tonnage has not brought about the hoped for strengthening of the pulp market, altho its effect was to lift some total of 500,000 tons of pulp out of production. Within the past weeks the European producers talked the situation over once again and, altho further curtailment was suggested, nothing definite was decided upon.

If the present unsatisfactory market continues it is probable that further conferences will be held by the North European producers to discuss greater retrenchment. One factor upholding this belief is the apparent further slowing up of operations among the converting paper mills in the United States, in which organizations the European producers find a principal market. It is reported that many of the paper mills are operating three and four days a week. Naturally their consumption of pulp is radically lessened.

The pulp price situation is extremely unsatisfactory. Many now believe and are hoping that the bottom has been reached, but some are hesitant to throw off their pessimism. They look for further declines. In recent weeks some further weakness is indicated, induced by the pressure to sell and by surplus tonnage hanging over the market here and there. The one safe statement to make is that a stabilized market is not yet in sight.

Meanwhile, however, there are some encouraging signs in the drastically low pulp inventories being maintained by most mills. With such conditions prevailing, any stimulation in the demand for paper will induce a similar quick demand for pulp.

Street rumors current in Portland early this month that the Tumwater Paper Mills Company, Olympia, Washington, were to resume operations within the next 60 days could not be confirmed, owing to the absence from the city of F. W. Leadbetter, head of the Leadbetter interests, who control the Tumwater properties.

What's Doing at the New Weyerhaeuser Mill?

R. D. Wolf, pulp mogul at the Weyerhaeuser Timber Company's operations at Longview, Washington, was traveling in the East for the greater part of June, but returned to his Far Western haunts about July 1. Several of the Weyerhaeuser pulp men were absent in June, many of them being in attendance at the annual convention at Dayton, Ohio, of the American Pulp & Paper Mill Superintendent's Association.

Ben Larrabee, recently appointed superintendent of pulp production at the Weyerhaeuser mill, returned from the East the last week in June.

Meanwhile, Fred Hurst, resident engineer for O. C. Schoenwerk, who is in charge of the design and construction of Weyerhaeuser's 150-ton bleached sulphite pulp mill, is keeping things moving.

Chris Kupplers' Sons, building contractors, have just about wound up their work. At the close of June all the buildings had been erected with the exception of the chip storage building and the pulp storage building. Work was starting on these units as June closed.

Installation of machinery is just getting into good stride. Work of erecting the Minton Vacuum Dryer was to start after July 4. Ogden Minton, inventor of the vacuum drying process, was a recent visitor to the Pacific Coast.

The buildings in the new Weyerhaeuser mill are of high type construction. The main units are all concrete, with cedar roofs. Wood tanks are being used for acid, stock storage and for blending purposes. A large amount of wood pipe is being used throughout the mill, the organization desiring to avoid contact of the pulp with iron. Pipe elbows are being avoided as much as possible and copper will be used extensively for joining pipe lengths.

The blowpits will have acid-resisting steel drainer bottoms.

Many precautions have been taken in the design to eliminate dirt in the pulp and there is no question that the new mill has as an aim the production of pulp with a cleanliness second to none. All windows which open are to be fitted with 60-mesh copper screen to prevent dirt from entering from outside sources.

Meanwhile, as the Weyerhaeuser's Longview mill moves toward completion at about the end of 1931, much rumor is being developed concerning the company's further plans for pulp development on the Coast. The Weyerhaeuser Timber Company is now perhaps the strongest and most extensive timber holding, logging, and lumber manufacturing company in the West. With the natural trend on the Coast to conversion of Western Hemlock stumpage into pulp, it is freely predicted, but never officially confirmed, that other Weyerhaeuser pulp projects will eventually be developed at such points as Everett, Washington, the Willapa Harbor district, and elsewhere.

Hansen Joins Weyerhaeuser Staff

Ralph Hansen, formerly chief chemist at the 175-ton bleached sulphite pulp mill of the Olympic Forest Products Company at Port Angeles, Washington, has recently transferred his activities to Longview, Washington, where he will occupy a similar position with the bleached sulphite pulp mill which the Weyerhaeuser Timber Company is now building in that city on the Columbia River.

Mr. Hansen is a former student of the Chemistry Department at the University of Washington.

Longview Fibre Maintaining Good Production

Down at Longview, Washington, where the Longview Fibre Company chews up Douglas Fir waste and Western Hemlock logs for kraft liner and m. g. wrapping there is talk of expansion. If it is anything other than talk there is nothing to be learned in the pleasant but uncompromising answer to Resident Manager R. S. Wertheimer, to-wit: "There is nothing to say."

However, what may be in the future in no way concerns the hum of activity that goes on at this mill meanwhile. Since the construction crew first got on the job to build this mill in 1927 there have been no holes in this Longview payroll. More than that, there has been a steady enlargement of activities.

R. S. WERTHEIMER,
Manager
Longview Fibre
Company

The mill started out as a 110-ton kraft pulp mill with a cylinder dryer for the manufacture of board. In subsequent months a Yankee machine was installed for the manufacture of m. g. wrappings which have since found a generous welcome in the trade. Then came a small groundwood mill, a paper bag factory, and more recently, an auxiliary plant for fabricating both solid fibre and corrugated shipping containers.

Among recent equipment installations is a screw press which is used to dewater pulp instead of the usual wet machine. The machine finds its function in providing economical pulp storage to equalize operations between pulp and paper mill departments. The press operates without the attention of a "lap" man and also eliminates the usual labor necessary to building lap storage.

The pulp is forced out in pellets after traveling the full length of the press screw. The dewatered pulp is then conveyed to a large storage pile outside the mill buildings. A loading device permits easy transfer of pulp from storage to beaters.

At present the container plant at the Longview Fibre Company is being enlarged to accommodate some additional machines.

Machine No. 12 at the big specialty mill of the Crown Willamette Paper Company, Camas, Washington, went into production last month on m. g. papers. No. 12 is a rebuilt Yankee which was moved to Camas following the dismantling of the company's mill at Floriston, California.

Lebanon Back On Six-Day Week

The 30-ton sulphite pulp and paper mill of the Crown Willamette Paper Company at Lebanon, Oregon, resumed a six-day week late in June, after having been on a five-day week for some time.

The book paper mill of the CASCADE PAPER CO. has been purchased by the EVERETT PULP & PAPER COMPANY.

Everett Buys Cascade Paper Company

The Everett Pulp & Paper Company of Everett, Washington, has acquired control by purchase of the 50-ton soda pulp book paper mill and converting plant of the Cascade Paper Company at West Tacoma, Washington. The Cascade mill went into receivership in April, 1930, and has been idle since that time.

On July 8 sale of the assets of the Cascade company to W. L. Raymond of Seattle was confirmed by the Pierce County Superior Court. Mr. Raymond, who has offices in the White Building, is the directing head of the operations of Crown Zellerbach Corporation and some of its allied interests in Western Washington.

In explaining the purchase, W. J. Pilz, secretary and manager of the Everett Pulp & Paper Company, said: "At the time that Mr. Raymond's bid was made he was representing the interests of the Everett Pulp & Paper Company and the Crown Zellerbach Corporation of San Francisco.

"However, arrangements have been made whereby the Everett company will take over the entire plant and the Crown Zellerbach Corporation will not have any interest therein."

Prior to the recent court confirmation of the sale other bids had been made by Mr. Raymond, but a number of things interfered with consummation. One bid was set aside on May 12, 1931, and new bids were called for by the receiver, D. J. Young of the Bank of California, Tacoma.

The accepted bid was for $133,694.20 for the property, the bidder to assume the general bonded indebtedness which totaled $675,000. A plan has been worked out whereby bondholders will be paid off at the rate of about 75c on the dollar. A new bond issue is proposed which will provide working capital.

The Everett plant will assume the indebtedness of the Cascade mill thru an arrangement worked out with the Crown Zellerbach Corporation.

In a statement to PACIFIC PULP & PAPER INDUSTRY Mr. Pilz explained that beyond acquisition of the Cascade plant there was little to announce for the present. It is the intention of the Everett company, however, to operate the plant at West Tacoma as soon as business conditions warrant.

It has not been fully decided whether the Cascade mill will be operated as a new company under a different name, or as a branch of the Everett mill. In any event, the operating staff will be formed around a nucleus drawn from the Everett mill.

Before being put into production the Cascade mill will undergo a fairly extensive rehabilitation, but no definite plans as to just when such modernization work will start have been formulated. It is believed that the Cascade pulp mill will not be operated. What grades of paper will be made has not been decided, nor has the source of pulp supply been fixed.

The Cascade mill began operation in March, 1919, with one 122-inch machine. In 1927 a 156-inch machine was added. In addition the mill has a fairly extensive converting plant for making school supplies and kindred items.

The Everett Pulp & Paper Company has been manufacturing book, label and writing papers on the Pacific Coast for forty years, distributing their products under the trade mark, "Rely on Everett," thru the jobbers on the Pacific Coast.

Wm. Howarth is president and treasurer, A. H. B. Jordan is vice-president, W. J. Pilz is secretary-manager, and J. L. Murray is director of sales promotion. Sales offices are maintained in San Francisco and Los Angeles.

Port Angeles Drafts Strong Resolution

If newsprint tonnage now being purchased by several metropolitan Western Washington daily newspapers from foreign pulpmills were transferred to Western Washington newsprint mills, an imminent 4-day a week plan would be averted and all unemployment and curtailed production in these American plants would cease, according to a survey just completed by the Port Angeles, Washington, Chamber of Commerce.

Thereupon the Port Angeles Chamber drew up and distributed a strong resolution pointing out that Crown-Zellerbach Corporation and allied interests in developing Western Washington communities had built up annual payrolls of $24,000,000, paid $1,200,000 in taxes, and spent $60,000,000 locally for wood and other materials.

The resolution urged patriotism on part of Western Washington big dailies in placing news contracts to the end that "a return of industrial prosperity be hastened."

The Crown Zellerbach Corporation and allied interests, which are the only organizations specifically referred to in the resolution, controls the only news print mill in Western Washington, the 300-ton Washington Pulp & Paper Corporation, at Port Angeles. Crown Zellerbach also controls news print mills at West Linn, Oregon, and at Ocean Falls, British Columbia.

Under-Consumption

By MARCUS ALTER, President
Commercial Paper Corporation, San Francisco

How can one talk of over-production when millions of hands stand outstretched to get a little more warmth, shelter, food, clothing or knowledge?

OUR country at the present time presents this anomaly — on one hand there is widespread unemployment, poverty, suffering and lack of the essentials of life for a large part of our population; and on the other hand foodstuffs, wares and merchandise are piling up in enormous quantities in the market places, warehouses and granaries for lack of buyers, and with all the boast of our great advancement in the science of economics, and the great strides we have made in every field of knowledge, we don't seem to be able to devise the simple means by which we can equitably distribute this undigested mass of products to the eager and needy population, who not only clamor for it, but are willing and anxious to pay for same with the sweat of their brow in useful employment.

However, the law of supply and demand makes it impossible to re-employ these men to produce additional stocks, when there is a staggering load already manufactured which cannot be disposed of, and the reason it cannot be disposed of is on account of unemployment. So we move around and around in this maze from which we are unable to escape: We can't put our men back to work because of over-production, and we can't dispose of our over-production on account of unemployment, which curtails the buying power of a good portion of our population.

Unfilled Wants

Now, looking at this matter in the right perspective, we can easily see that it is not over-production that is the cause of our woe, but under-consumption is rather the root of the problem. If all the unemployed, as well as those whose income has been reduced by the depression, could come into the market with a medium of exchange, and procure the necessities and the comforts of life, for themselves and their dependents, our so-called over-production would vanish as by magic, and our shops, factories and market places would hum again with a scale of activity such as we have never enjoyed before.

But why speak about the unemployed only who would come to supply their needs? Who of us mortals have ever had, or are having enough of the comforts and necessities of life? How many of us do not long for more comfortable homes, better clothes, newer furniture, more books or a little patch of our own ground for a garden, in which we can play in our leisure hours, by planting a few flowers, bushes or trees, or to have the children roam around with their toys and playthings? Is there a limit to what the human heart yearns for and our being strives for, during our life-time? What else is, or can be, the reason for our struggles, our labor and our fighting, except to gain a little more for ourselves and our loved-ones of the comforts and necessities of life? How can one talk of over-production when millions of hands stand outstretched to get a little more warmth, shelter, food, clothing or knowledge? What holds back these comforts and needs from all of us who labor to get them? Nothing, but an antiquated law of economics, to which our sages and learned men have not as yet turned to solve, but are trying instead to solve the mysteries of the stars, the heavens and the elements.

A Failure

The so-called red-peril of Bolshevism, is only an attempt to solve this momentous problem of distributing equitably to the entire population, the needs and comforts of life. But that it has failed miserably, not even its strongest supporters will deny, and the only reason why it is still being supported by its adherents is because they hope it will accomplish its purpose in the not too far distant future. But how can this movement ever satisfy the longings and yearnings of the human heart, when it tramples under its heel, so mercilessly, every right and freedom of its inhabitants? This movement has not only enslaved the body and soul of millions of its people, but it forces most of them to perform tasks not accustomed to, and irksome in the extreme, from their previous mode of life. It has abolished freedom of speech, of the press, and of initiative and doles out the peoples daily bread like forage to a herd of cattle. It has destroyed their houses of worship, their religion, their customs and beliefs and all that they deemed sacred and worth-while for innumerable centuries. Such a movement cannot and will not solve this momentous problem which needs the co-operation and good will of every inhabitant of the land, for a rightful and proper solution.

A Blight on Intelligence

Our own country is much better equipped to solve this issue satisfactorily and equitably. We have made great strides toward raising the standard of living for the mass of our population, more so than any other country in the world. But these recurring depressions are a blight on our accomplishments, and it behooves all lovers of humanity, and the country's best minds, to work for a speedy solution of this difficulty.

Radical changes in our monetary and credit structure

are necessary to accomplish this task. The old established order of economics must be so attuned as to provide a medium of exchange for labor performed, goods manufactured or crops gorwn, which will be flexible and elastic so that as long as one is willing to labor and produce things needed or desired by others, who also produce or perform needful tasks, the exchangeability of these services or products should insure to the laborer an ample supply of the needs and comforts of life, irrespective of the present law of supply and demand. The products of labor should become part of the community wealth and be distributed wherever and whenever it is wanted. Also the value of goods and services should be continually adjusted in order to insure a larger supply of the things most needed or desired by the population's changing needs and whims, so that they can always be exchanged on a fair and equitable basis.

The printing trade, having under its control, the printed word, the most powerful means yet devised for disseminating and propagating beneficient and civilizing ideas, for the good of the commonwealth, can render yeoman service in solving this problem. And a concentrated movement toward its solution would hasten the day when poverty will be abolished, the evil of over-production cured, and another long stride made towards lifting the human family to a higher peak of contentment, happiness and achievement, which the sages of all ages have hoped, labored and prayed it should attain.

Some Day It Will Be Done

THE latest Canadian budget places a prohibitory tariff of fifteen cents per pound on magazines and periodicals. The aim, of course, is to stem the great tide of "literature" which long has flooded the Dominion from United States sources. It is not the intent in this discussion to challenge the wisdom of such a tariff, but to inquire into the far-reaching effects.

Mass production of magazines and periodicals in the United States has made it possible to empploy higher paid writers and illustrators and, with this talent, make a strong bid for the reading time of the Canadian neighbor.

The effect has been manifold.

First, American ideas have permeated the Canadian mind, which is notably nationalistic in its makeup. Second, the tons of advertising riding along with the articles and stories in the periodicals have carried the message of American wares to the Canadian consumer in louder tone than possible for Canadian manufacturers to proclaim thru their own domestic magazines. Third, Canadian manufacturers of fine and book papers have suffered by the withered condition of the Canadian printing and allied industries which could hitherto bask only in the deep shadow of the American periodical hurricane.

The total Canadian population compares fairly well with the population in the eleven Western states, except that Canada is spread out over vastly more territory. It is possible to discover in the effects of the new Canadian tariff, some analogies applicable to the publishing industry on the Pacific Coast.

As a specific effect of the Dominion's new tariff it is reported that big American magazine publishers are considering printing their Canadian distribution in a Canadian city. To print 150,000 copies requires lots of paper, which, of course, would be manufactured in Canada. In addition, Canada would benefit by the stimulus of increased payrolls in printing, engraving, and manufacture of printing machinery and inks. These benefits would be directly in line with what Canada hopes to accomplish as a general net result with its new tariff, namely, "Canada first".

Turn now to that portion of the United States falling within the trade territory of the Pacific Coast. Each day, each week, each month this territory with its millions of people purchase tons upon tons of periodical literature ALMOST EVERY POUND OF WHICH IS PUBLISHED IN SOME EASTERN CITY. With many of the larger magazines of general circulation the Pacific Coast distribution is sent around by the literal boatload.

Of course there is not the international cleaveage existing between the Pacific Coast and the rest of the United States, as exists between this nation and Canada, nor is there any protecting tariff which can be invoked to give the Pacific Coast publishing business a chance. It takes only the meanest kind of vision, however, to visualize the possibilities open to the developing paper industry of the Pacific Coast if big time publishers can be induced to print their Western circulation in some Pacific Coast city.

It might be a long time before the editorial board would have to be disturbed. The "brains" of the magazines could continue to function in the East long after a portion of the physical production of the magazine was transferred to the Coast. After all, here is the source of low cost domestic pulp, and eventually of low cost paper.

The mechanic of shifting the printing of Pacific West magazine distribution to the West, close to the supply of paper, may be difficult, but not at all insurmountable, and certainly worthy of attainment.

That's Awful Early—Ya-w-w-w-n

Down at Cathlamet, on the Washington side of the lower Columbia River, where the Crown Willamette Paper Company operates a logging camp to bring out pulpwood for its mills at Camas and West Linn, the boys are turning out of their bunks awful early these days. It's said that some of the men don't even go to bed. They just walk around the foot of the bunk and meet themselves getting out on the other side.

As a matter of fact, though, the company has adopted an early working schedule during the dry season to minimize the danger of forest fires. Under the dry season schedule the woods car leaves at 2:45 a.m. for the main logging shows and all woods work in the main camp is under way by 4 o'clock. Even that's not so late in the day.

At 8 o'clock in the morning the lunch whistle blows, about the time many of us are hopping into the flivver for the office.

However, there are compensations in this sort of super-daylight-saving plan, for the loggers are thru work for the day at noon.

The plan permits all work to be done in the woods in the morning hours when humidity conditions are most favorable for reducing the forest fire hazard.

Well, y-a-a-w-w-w-n-n, —gosh, I'm sleepy—I gotta get me some shut-eye.

W. A. Kelly, mill manager at the Hawley Pulp & Paper Company, Oregon City, returned to his desk early this month, following a trip to Dayton, Ohio, where he attended the national convention of the American Pulp and Paper Mill Superintendent's Association. Mr. Kelley's brother, Roy, a recent visitor to the Pacific Northwest, was named president of the organization at the annual convention.

Oberdorfer Jr. Starts Papermaking Career

Young Max R. Oberdorfer Jr. started in June to retrace from the beginning the path taken in the past thirty years by his father, Max Oberdorfer, which has led in a successful career to the present post of President and General Manager of the St. Helens Pulp & Paper Company, St. Helens, Oregon.

Mr. Oberdorfer Sr. long ago finished a rigid training in shop and class room in Germany, and has subsequently moved up the ladder of practical operating experience thru a number of paper and pulp mills on this and the European continent.

Max R. Jr. will enter the J. M. Voith Machine Works at Heidenheim, Germany, as a "Volontar" in order to get practical experience in all departments, including pattern shops, foundry, blacksmith shop and machine shop.

The German system of educating its young men for their chosen industry emphasizes both the practical and the theoretical, and its thoroness is too well known to warrant further comment here. Mr. Oberdorfer Sr. is a firm believer in that system and believes it could well be adopted in the United States.

In Germany the young men who are learning under this system receive no pay. However, in return for the work which they might furnish they are taught by the foremen and are allowed to spend a certain length of time in each department so that after a year they have a very good idea of the practical workings of any foundry and machine shop.

After Max Jr. has spent a year in Germany he will go thru an American university, studying either mechanical or chemical engineering. After that he will probably go thru one or two German pulp and paper mills as a "Volontar" again. That he should have unusual qualifications as a paper maker at the end of such a thoro training goes without saying.

St. Helens New Machine In Production

The St. Helens Pulp & Paper Company at St. Helens, Oregon, now has its new 202-inch Beloit paper machine in production. The machine is designed to operate at a speed of 1,500 feet per minute. Kraft fruit wrap, and lightweight specialties will be manufactured on the new unit.

Under the supervision of Max Oberdorfer, president and general manager, the St. Helens company has been experimenting for a long time on bleached kraft items, thus gradually moving out of a sole dependence upon the mass production grades into the field of new papers. Many of the new items are bleached or semi-bleached, the bleaching being done in the beaters. Kranila Kraft is one of the new developments. It is being used for the company's business stationery.

New Assistant Manager at St. Helens

J. E. Ryberg is now assistant manager of the 80-ton kraft pulp and paper mill of the St. Helens Pulp & Paper Company at St. Helens, Oregon. He came to St. Helens from the Calcasieu Sulphate Fibre Company at Elizabeth, Louisiana. Other mills Mr. Ryberg has served include the Mosinee mills in Wisconsin.

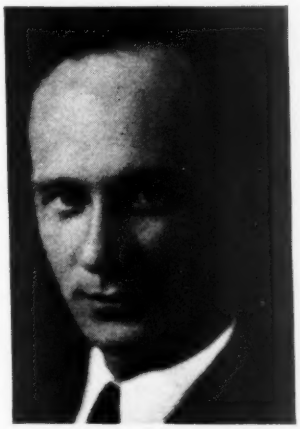
G. Elmer Emigh is paper mill superintendent and Leon Baker is Pulp mill superintendent.

Mr. Ryberg is enthusiastic about the Pacific Coast and about the St. Helens mill in particular.

Goldsmith Will Direct Hawaiian Cane Research

Following some time spent in the East, W. F. Goldsmith returned last month to his new offices at 215 Market Street, San Francisco, where he will make his headquarters as technical director of the Hawaiian Cane Products Company. Mr. Goldsmith was with the Arthur D. Little, Inc., pulp and paper industry consulting chemists, Cambridge, Massachusetts, for five years prior to his joining the Hawaiian Cane Products Company a few months ago.

The Hawaiian company is sponsored by the "big five" industrial companies in the Islands. A mill is now under construction at Hilo, to be in operation about the end of the current year, for the manufacture of insulating board and other commodities from the refuse of the sugar mill operations—bagasse.



W. F. GOLDSMITH,
Technical Director
Hawaiian Cane
Products Company

Mr. Goldsmith has spent a great many years in the pulp and paper and allied industries. In his career he has been with the Pejepscot Paper Company, Brunswick, Maine, in various departments; with the Standard Paper Company (now Sutherland Paper Company) of Kalamazoo, Michigan, as chief chemist; Hawthorne Paper Company, Kalamazoo, manufacturers of bonds, ledgers and fine paper, as plant engineer; research engineer Barrett & Company, Elizabeth, N. J., a subsidiary of Allied Chemical & Dye Company; then to Arthur D. Little Inc.

Mr. Goldsmith will have as an assistant, Mr. G. R. Harger, chemist, until recently with I. F. Laucks, Seattle.

Tissue Company Enlarging Camas Unit

O. J. Leloff, superintendent of the converting unit of the Tissue Company of Saugerties, N. Y., recently installed in connection with the specialty mill of the Crown Willamette Paper Company at Camas, Washington, reports a gradual increase of business. A fourth machine, for the production of 18-inch napkins, is to be installed in late July.

Charles H. Coons has returned to New York following a stay in Camas during which time he directed the establishment of the new unit.

Further expansion of the Tissue Company's unit is indicated by the company's officials at a later date.

E. M. Mills, executive vice-president of the Crown Zellerbach Corporation and holder of several other high titles in the industry on the Coast, spent considerable time in the Pacific Northwest in June delving into the problems of the many enterprises with which he is connected.

T-R-A-D-E - T-A-L-K

Devoted to the Paper Trade of the Western States

1931 OFFICERS
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Secretary-Treasurer
H. Arthur Dunn, San Francisco.

Milk Bottle Cap Manufacturer Locates L. A. Branch

Another Eastern manufacturing concern, attracted to Los Angeles by the steadily increasing market, has started operations, according to the Austin Securities Company, which has just completed a plant for the Smith-Lee Company.

The Smith-Lee Company, which is declared to be one of the largest manufacturers of milk bottle tops in the world, has operated in this territory thru its sales agents, the Creamery Package Company. Owing to the rapid growth of business during the past year, it was decided to establish a factory in Los Angeles, to serve the entire Pacific Coast, Hawaii, Japan, and China. Distribution will be handled as formerly thru the Creamery Package Company.

The plant, which is located in the Hostetter Industrial District, was designed to suit the requirements of the milk cap company and has been taken over on a long-term lease. Approximately 9,000 square feet of manufacturing space, as well as general offices, are provided. A private spur track and a large loading yard will facilitate shipping.

W. L. Chaplin is in charge of the Los Angeles plant.

Mrs. Nancy Baker Tompkins, Los Angeles, who recently inaugurated Nancy Baker Tompkins Advisory Service for Paper Users, announced recently that she was representing the lines of the Appleton Coated Paper Company, Appleton, Wisconsin; the Fox River Paper Company's advertised lines; a complete line of Hammermill papers; Knowlton Brothers, Watertown, N. Y., covers; and Pan-Pacific Importers, Los Angeles, imported papers.

They Saw It Rollin'

Among interested spectators when the new kraft machine went into action recently at the St. Helens Pulp & Paper mill, St. Helens, Ore., were Frank Philbrook, Los Angeles; S. C. Hancock, San Francisco; C. E. McKillop, Portland; George Long, Seattle, and W. H. Cassell, Wenatchee, Washington, all of the Graham Paper Company.

Holman Eyeing Oregon's Paper Expenditures

Rufus Holman, long known in the paper industry as head of the Portland Paper Box Company, and one time president of the Pacific Coast Paper Box Manufacturers Association, has been appointed a one-man committee by Oregon's Governor Meier to investigate ways and means of reducing the state's annual paper bill.

In his post as State Treasurer, assumed two months ago, Mr. Holman is surveying the grades of paper purchased by the stated with an eye to standardization and of analyzing critically the grade of paper now being used for each service. A saving of $40,000 per year, or approximately 40% of the annual bill, is predicted.

Colorado Business Not So Good

Although general business conditions in Colorado are considered better than in the rest of the country, paper trade in that region is called comparable with that of the rest of the United States. A poll of jobbers in Denver shows business between 20% and 25% off. The jobbers, however, see signs of business picking up.

One bright spot in the horizon is the excellent peach crop expected to be harvested shortly. In the matter of Palisade peaches alone it is expected that 2,100 cars will be shipped from the famous peach city, of which shipment fully 50% will be wrapped—a boon to the paper men.

The Robert Dollar Building, 311 California Street, San Francisco, is becoming somewhat of a "paper building" as more and more paper organizations are moving to that address.

Leading the list at 311 California Street, is the Pacific States Paper Trade Association, of which H. Arthur Dunn is secretary. Others at that address are B. P. Jaggard and J. F. Wuenschel, of the Hammermill Paper Company, and the Grays Harbor Pulp and Paper Corporation; E. B. Skinner, of the Martin-Cantine Company; D. L. Maxwell, of The Tissue Company; Lloyd Riches, of the Hawley Paper Company, and Clyde E. Swick, of the Graham Paper Company.

Fire, believed to be of incendiary origin, destroyed a stock of paper warehoused at Yakima, Washington, by the Zellerbach Paper Company, on June 18. A. W. Akers, Seattle division manager of the company, estimated the damage at $25,000.

A. F. Rogers, veteran president of the Spokane Paper & Stationery Company, Spokane, died June 19 following an operation for appendicitis. Mr. Rogers was a prominent figure in Spokane civic affairs.

C. W. Hoeper, sales manager of the Badger Paper Mills, Inc., of Peshtigo, Wisconsin, recently visited the Pacific Coast. He conducted a survey which may lead to wider distribution of his firm's products in the west.

New Offices In San Francisco

E. B. ("Ned") Skinner, San Francisco, Pacific Coast representative of The Martin-Cantine Company, and D. L. Maxwell, San Francisco, treasurer and Pacific Coast sales manager of The Tissue Company, have taken joint offices in the Robert Dollar Building at 311 California Street, San Francisco.

Plants of both these firms are located at Saugerties, N. Y., and Martin Cantine is president of both. His son, Holley R. Cantine, is general manager of the Martin-Cantine Company, and vice-president of The Tissue Company.

Mr. Skinner formerly had his office with the General Paper Company in San Francisco, and Mr. Maxwell worked out of his home at Palo Alto.

Louis A. Colton, director of purchases of the Zellerbach Paper Company, San Francisco, was elected last month as president of the Purchasing Agents' Association of Northern California, Inc. Mr. Colton formerly was first vice-president and was president while he was in Toronto attending the National Association of Purchasing Agents' convention.

H. Lelend Weber, of Fibreboard Products, Inc., secretary of the Northern California association last term, was elected second vice-president last month. B. P. Jaggard, of the Hammermill Paper Company, is a member of the Northern California body's committee on maintaining contact with ex-purchasing agents.

R. K. Erlandson, Blake, Moffitt & Towne, Los Angeles, accompanied by his family, spent his vacation in the high Sierra, near Mount Whitney. Mr. Erlandson reports that they have enough fish to eat while in the mountains, but there was no overproduction problem encountered, so no trout were brought back to Los Angeles.

William J. Collins, son of Martin Collins, president of the Graham Paper Company, St. Louis, is in Los Angeles visiting the trade, and also his brother Robert, who is an army air corps cadet training at March Field. Another brother, Harold J. Collins, was also in Los Angeles recently on a honeymoon trip. Both William and Harold Collins are connected with the Graham Paper Company, main office, St. Louis.

Paraffine Merges Oriental Interests

R. S. Shainwald, San Francisco, president of The Paraffine Companies, Inc., returned from abroad last month and reported his firm had merged its business in Japan, Korea and Manchuria with Japanese interests and had formed a company of which Paraffine will hold 60% interest. This company is incorporated for one million yen (about $500,000), and is known as the Sakuma Pabco Industrial Co., Ltd., of Tokyo. It is said this firm will be the largest factor in the making and distributing of roofing and other Pabco products in the Orient.

Nathaniel R. Hopkins, New York, sales manager of the Oxford Paper Company, with mills at Rumford, Maine, was a recent visitor to the Pacific Coast, calling on the various offices of Blake, Moffitt & Towne, his firm's western distributors.

R. A. McDonald, San Francisco, vice-president of the Crown-Willamette Paper Company, left early in June for an eastern trip.

Roy Young to San Francisco

Roy O. Young, Portland, Crown-Willamette Paper Company, was transferred to the company's San Francisco office July 15. While Mr. Young's title in connection with his promotion was not learned, it was understood that he would be identified with production and sales.

Mr. Young, a native of Illinois, entered the pulp and paper industry as bookkeeper for the old West Oregon City Paper Mills, continuing with the concern following its consolidation with the Crown-Willamette. Shortly thereafter he was transferred to the Portland office and appointed machine program man. He was later placed in charge at the company's Floriston plant, and after that manager of the Camas, Washington unit. He has been in the Portland office for a year or more.

Fir-Tex Shows 1930 Loss

Irregular operation of plant occasioned by an insufficiency of orders, in turn traceable in large degree to the business "repression" and greatly curtailed activity in the building trades, are factors accounting for an operating deficit of $90,081 shown in the 1930 statement of the Fir-Tex Insulating Board Company.

The company has a large plant at St. Helens, Oregon, where it manufactures "Fir-Tex", an insulating and sound-deadening board, made from Douglas Fir waste. The plant, which cost approximately $2,000,000, has a daily rated capacity of 250,000 square feet of finished material.

The company's uncertified balance sheet as of December 31, 1930, shows total current assets of $273,558, and total current liabilities of $329,650. Total net worth is given as $1,934,465.

Plan Tannic Acid Plant

Early construction of a tannic acid plant in the vicinity of Kalama, Washington, is regarded highly probable, according to Willis E. Straight, of Portland, forest engineer and timber estimator, who last month completed a survey for undisclosed Eastern interests. The plant would utilize hemlock bark, hitherto a waste product of pulp mills. The bark would be obtained from the Crown-Willamette Paper Company, which has just completed a specially-designed hand-barking unit at Cathlamet.

The first unit, to be established on a 10-acre tract, would cost $150,000 and would employ 200 men. Twenty-five cords of bark would be processed daily. A considerable expansion would go forward, including bark storage facilities, as soon as bark shipping develops in the area served, with the possibility of the ultimate building of a blender and tannery, Mr. Straight said. A reforestation program, such as is being carried out by the Crown-Willamette company, would insure permanent operation of the industry.

From D. S. Denman, head of the timber department of the Crown-Willamette company, it was learned that a bark-peeling plant had been completed at Cathlamet and that bark will be removed with little or no waste. While the name of the company looking to the Pacific Northwest for its supply of tannic acid was not made public, it was said that the concern had ample financial backing and that no public financing program would be required to put the project across.

George Reid, Jr., treasurer and credit manager for the Denver branch of the Butler Paper Company, died suddenly on June 11. He had been identified with Denver paper companies for the past 35 years.

T-A-P-P-I

Pacific Coast Section

Chairman—C. W. MORDEN,
C. W. Morden Co., Portland, Oregon

Vice-Chairman—HARRY ANDREWS,
Powell River Co., Ltd., Powell River, B. C.

Secretary-Treasurer—MYRON W. BLACK,
Inland Empire Paper Co., Millwood, Wash.

Powell River To Be Host To TAPPI In Fall

If the boys at Powell River Company Ltd. have their way about it the regular Fall meeting of the Pacific Section of TAPPI will be the best yet. Noted as authorities on hospitality, the Powell River technicians are determined to live up to expectancy by putting up something worthwhile, instructive, profitable and entertaining.

Harry Andrews, Powell River plant chemist and Section vice-chairman, is the nucleus of a committee which is formulating the Fall meeting plans. A definite date has not yet been set, except tenatively for early October. The session will be held on a Friday, as the boat schedules will permit delegates to leave Vancouver, B. C., for Powell River Thursday night, spend Friday in the paper mill city, and take the Friday night boat back to Vancouver.

Among its many hundreds of employes the Powell River Company numbers quite a few members of TAPPI, and it is these men who are working with Mr. Andrews to perfect the Fall program.

Also capably assisting Mr. Andrews is Myron Black, secretary-treasurer of the Section, technician of the Inland Empire Paper Company, Millwood, Washington. C. W. Morden, Section Chairman, has gone East for about two months on business and will therefore not be able to participate actively in formulating the Fall doings.

A more detailed and definite outline of the Fall program will be available in the August issue of PACIFIC PULP & PAPER INDUSTRY, Mr. Andrews informs. Meanwhile, plans are progressing to canvass every member of the Pacific Section to ascertain as nearly as possible the attendance list. In order to arrange accommodations and entertainment for the visitors a check-up is quite necessary, and Mr. Andrews has requested prompt return of the questionnaire cards when mailed.

The Powell River Company will participate in the entertainment to the visiting delegates. Every facility will be afforded for inspecting the new construction work at Powell River and the hydro-electric project at Lois River. The morning will be given over entirely to this purpose and cars will be on hand to drive the visitors about the district and out to Lois River. The usual banquet will be held in Dwight Hall in the evening. Further details in this connection will appear in the August issue.

The complete agenda of the meeting has not been drawn up, but the committee promise that a number of well diversified and interesting papers will be presented at the afternoon session.

The Powell River Golf Course will be available to visitors staying over Saturday.

TAPPI members in Eastern Pennsylvania and vicinity are organizing a Philadelphia Section. When organized, it will be the fourth Section in operation in the country, being patterned after similar groups on the Pacific Coast, in Wisconsin, and in Michigan.

Peter Parent, sulphite cook at Shaffer Box Company, Tacoma, is a recent new member of TAPPI.

Lyman Smith, mill manager of the Camas, Washington, mill of the Crown Willamette Paper Company, for a period of several years recently, is a new member of TAPPI. He is at present located at Brattleboro, Vermont.

The Freeport Sulphur Company, with executive offices at 122 East 42nd St., New York, has recently joined TAPPI.

W. M. Osborne, formerly of Grays Harbor Pulp and Paper Company is now with the Puget Sound Pulp and Timber Company, Bellingham, Wash.

Killam Sees Optimism Prevailing

Although signs of substantial improvement in the market situation are still lacking, there is a feeling of unmistakable optimism in eastern pulp circles, according to Lawrence W. Killam, president of British Columbia Pulp & Paper Company, who recently returned to Vancouver, B. C., after spending a couple of months in eastern Canada on business.

"There are no heavy stocks of pulp or paper in the east", reported Mr. Killam. "Most of the paper mills are manufacturing to fill orders and they are buying spot pulp to meet their immediate requirements. The consequence of this situation is that any improvement in business will find a shortage in many lines of paper and a deficiency of pulp in the mills. The only country in the world I know of which has heavy stocks of pulp on hand is Japan.

"The paper mills are operating at much less than capacity everywhere and are hungry for orders. Until these orders come they are hesitant about laying in heavy stocks of pulp. Most of the eastern pulp mills are running about five days a week. Their percentage of capacity production is considerably greater, however, than that of most of the newsprint mills.

"The most serious thing in the pulp industry is unregulated production and consequent price-cutting which has in a large measure demoralized the market. Until there is some attempt at co-operation in maintaining a standard price the individual mills are in for a good deal of trouble. There has been a lot of talk about the necessity of reduction in production of European countries as a means of stabilizing world industry. Well, these European countries are not likely to curtail production to meet conditions unless Canada and the United States adopt the same policy, too."

Mr. Killam found no evidence of fear that Russia would be a serious menace in the American market. Russian pulpwood has ceased to be a factor of any consequence in the east, he says, and while unrestricted dumping might have had serious consequences for a few mills, the bogey of Soviet competition did not seem so much in evidence now as a few months ago.

"Most of the business men I talked with are generally optimistic," said Mr. Killam. "Canada's return to prosperous conditions, however, is likely to be handicapped a good deal by the extremely unfavorable outlook for the wheat crop."

S·A·F·E·T·Y

FIRST — LAST — ALWAYS

The best safety device known is a careful man

Pacific Coast Division
Pulp and Paper Section
NATIONAL SAFETY COUNCIL
ROBERT H. SCANLON
Regional Director
Powell River Co., Ltd.
Powell River, B. C.

The employe can't be blamed for not getting enthused over a lot of SAFETY signs hung up in a mill that the management permits to be untidy.

STATEMENT OF ACCIDENT EXPERIENCE—MAY, 1931

(Mills in State of Washington)

COMPANY—	Hours Worked	Total Accidents	Frequency Rate	Days Lost	Severity Rate	Standing
Everett Pulp & Paper Co., Everett	64,752	0	0	0	0	1
Grays Harbor Pulp and Paper Co., Hoquim	52,770	0	0	0	0	2
Pacific Straw Paper & Board Co., Longview	23,558	0	0	0	0	3
St. Regis Kraft Co. (Mill down)	4,662	0	0	0	0	4
National Paper Products Co., Port Townsend	83,362	0	0	20	.240	5
Crown Willamette Paper Co., Camas	292,022	2	6.9	181	.623	6
Longview Fibre Co., Longview	98,633	2	20.3	64	.649	7
Fibreboard Products Inc., Sumner	32,074	1	31.2	20	.623	8
Puget Sound Pulp & Timber Co., Anacortes	28,600	1	35.0	30	1.049	9
Washington Pulp & Paper Corp., Port Angeles	71,617	3	41.9	47	.656	10
Inland Empire Paper Co., Millwood	64,382	3	46.6	70	1.087	11
Rainier Pulp & Paper Co., Shelton	69,254	4	57.8	54	.780	12
Columbia River Paper Mills, Vancouver	46,870	3	64.0	42	.896	13
Puget Sound Pulp & Timber Co., Bellingham	27,888	3	107.5	28	1.004	14
Puget Sound Pulp & Timber Co., Everett	57,674	7	121.4	172	2.982	15
Fibreboard Products Inc., Port Angeles	37,072	5	134.9	56	1.511	16
Shaffer Box Co., Tacoma	14,156	2	141.3	17	1.201	17

The following mills not reporting—Pacific Coast Paper Mills; Cascade Paper Co. (not in operation); Tumwater Paper Mills (not in operation).

Reports From the Japanese Industry

While a gradual decrease has been marked in the production of paper in this country, a remarkable increase has been shown in the importation of foreign papers and pulp, according to statistics compiled by the Paper Manufacturers Association of Japan.

The statistics show that imports of pulp reached 56,846,000 pounds (this figure includes sulphite pulp for rayon manufacturing) for the first quarter of the present year, which figure represents an increase of 6,692,934 pounds over the similar period of the previous year, and those of paper registered an increase of 9,150,757 pounds.

An increase in imports of printing paper is especially notable. Among the principal supplier nations, Norway occupies the foremost position followed by Sweden, which has been displaying conspicuous activity since the beginning of the year. An interesting feature in this connection is that the Canadan printing paper which had not hitherto been imported to this country was brought in to the extent of 1,894,400 pounds.

The comparative figures for the imports of printing paper for the first quarter of this year and 1930 are as follows:

(In 1,000 pounds)

From	1931	1930
Sweden	37,625	14,914
Norway	59,558	892
Canada	18,944	.....
Germany	18,296	226

The market for paper grades of pulp in Japan is reported to be very bad at the present time. There has been a steady decline in prices since last Fall. Japanese producers of pulp have produced more than the market could absorb, while at the same time competition has become stronger between American and Canadian exporters of pulp to Japan.

It is reported that Japanese manufacturers of pulp are losing heavily on pulp sales at present prices. In consequence, they are curtailing production, which may in time have a beneficial effect in improving prices. However, immediate relief is unlikely, due to the pulp stocks in Japanese warehouse which are considerably above normal.

Another Candle In Hockley's Cake

C. C. Hockley, Portland consulting pulp and paper mill engineer, celebrated his 53rd birthday anniversary July 5. Mr. Hockley, a native of Watsontown, Pensylvania, spent a part of his early life as an employe of the Carnegie Steel Company in Pittsburg. He left this job to take a course in civil engineering at an Ohio university.

His first position after leaving college was with an eastern railroad, doing local civil engineering work. Shortly after advancing to division engineer he resigned to go to Canada to work for power companies. While there he became interested in the pulp and paper industry, with headquarters at Grand Mere, Quebec. He was in Canada ten years.

Mr. Hockley then moved to Appleton, Wisconsin, as engineer for a bag and paper company. Six years ago he went to Portland for a look about, and liked it so well he stayed. He has since followed his profession in that city, specializing in the pulp and paper industry.

The 100-ton board mill of the Western Board & Paper Company, Kalamazoo, Michigan, closed since last August has gone into receivership and a decree of dissolution has been granted.

The Japanese Paper Industry
Production and Sales, April, 1931

	Productions (lbs.)	Sales (lbs.)
Printing Paper— (Superior Quality)	14,243,344	12,430,381
Printing Paper— (Ordinary Quality)	10,049,090	9,286,123
Writing Paper	3,727,712	2,699,631
Simili Paper	11,336,799	8,163,557
Art Paper	1,294,842	1,057,740
News Printing Paper	42,945,150	44,429,277
Sulphite Paper	4,541,651	4,740,522
Coloured Paper	2,239,179	1,486,387
Wrapping Paper	10,975,540	12,215,028
Chinese Paper	1,416,451	1,488,157
Board Paper	7,097,222	5,145,066
Sundries	5,413,284	5,681,639
Total	**115,280,264**	**108,823,508**

Japanese Imports of Pulp—March, 1931

Japan imported chemical pulp during March in the following amounts (in lbs.) and from the countries indicated: Sweden, 5,648,533; Norway, 3,892,267; Germany, 58,400; France, 112,534; United States, 3,366,133; Canada, 7,240,800, and Europe, 842,933. Total, 21,161,600.

Japan's Pulp Imports—April, 1931

Japan imported chemical pulp as follows in April, 1931 (amounts stated in pounds): Sweden, 1,202,667; Norway, 5,291,467; Germany, 268,533; France, 120,533; U. S. A., 3,384,400; Canada, 8,181,733; Europe, 460,400; total, 18,909,733.

Harold G. Ingraham With Bird Machine Company

Bird Machine Company, South Walpole, Massachusetts, announces the appointment of Harold G. Ingraham to assist F. F. Frothingham as representative of the company in the middle west and on the Pacific Coast.

Mr. Ingraham is prominently known to paper mill men through his long association with V. D. Simons, Inc., paper and pulp mill engineers of Chicago. Mr. Ingraham's intimate knowledge of paper and pulp mill operation and his extensive engineering experience eminently fit him to serve the interests of the mills in the middle western and western territory in connection with the operation and installation of Bird Machinery.

New Finnish Sulphite Mill Ready To Start

The Anglo-Finnish Company (Osakeyhtio Toppila) is completing and about to put into production a new sulphite pulp mill at Uleaborg on the Northwest coast of Finland. The mill will have a present capacity of 25,000 tons, but is designed for 32,000 to 35,000 tons eventually. Construction began a year ago in June. W. H. Dixon, of England, is chairman of the new company's board.

McMillen Now With St. Regis

Charles R. McMillen resigned as president of the Union Bag & Paper Corporation upon his election as a vice president and director of the St. Regis Paper Company. Mr. McMillen will be remembered on the Pacific Coast as the leading executive of Union Bag in locating the 160-ton kraft pulp mill at Tacoma about three years ago. The Tacoma mill was subsequently sold to the St. Regis interests.

New Types
New Models
New Machines

EQUIPMENT

Manufacturers of, and dealers in, equipment used by pulp and paper mills, board manufacturers, converting plants, paper merchants, or any other branch of the industry may make their announcements in this department.

New Dealers
New Branches
Appointments

Spencer Joins E. D. Jones & Sons Co.

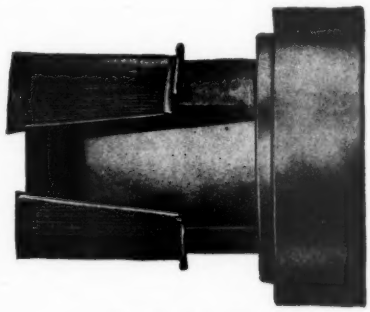
The E. D. Jones & Sons Company, of Pittsfield, Massachusetts, announces that George H. Spencer, formerly sales manager of the Minton Vacuum Dryer Corporation, has joined their sales staff.

Following graduation in 1919, as a mechanical engineer from Stevens Institute of Technology, Mr. Spencer has been successively engaged as plant analyst for Goodyear Tire and Rubber Co., charge of Pulp and Paper Department of S K F Industries, Inc.; and sales manager of Minton Vacuum Dryer Corporation.

Cutting "Core Account" with Oneida Chuck

The Oneida Chuck is a new friction collar designed for use with rolls wound on paper cores or rolls without cores. It can be furnished for any size shaft or core and is practically indestructible, being built of steel. The Oneida Chuck assists materially when used by mills on super calenders or rewinders in inter-plant or converting work.

The John Waldron Corporation, New Brunswick, N. J., specialists in the construction of paper converting machinery for over a century, are the builders of this



The Oneida Chuck

economical and dependable Chuck. The Pacific Coast office of the John Waldron Corporation, located at 311 Lewis Building, Portland, Oregon, will gladly furnish additional details and prices upon request.

"Paper mills and converting plants alike are assured of profitable savings by the elimination of the 'Core Account', freight, drayage and handling expense for return of cores," the Waldron Company states. "The Oneida Chuck permits the purchase of paper cores in machine trim lengths for cutting to sizes as required, thus eliminating the necessity for stocking cores in all lengths.

"Perhaps one of the largest of the many savings provided by the use of the Oneida Chuck is in the item of waste, for rolls can now be run down to the last thickness of paper and eliminating skinning down for return of cores.

"The Oneida Chuck is simple to operate and reports indicate that in many instances the Chuck more than paid for itself on the first week's run."

Pacific Link-Belt Elects Hoffman Vice-President

Ralph M. Hoffman, for 8 years manager of the Seattle office of the Pacific Division of Link-Belt Company, has been appointed vice-president and sales manager of that division, with headquarters at San Francisco. He succeeds Harold H. Clark, who retired on June 1st.

Mr. Hoffman has had twenty years of experience on

RALPH M. HOFFMAN
Moves up with
Link-Belt Company
Pacific Division.

the Pacific Coast in selling elevating, conveying and power transmitting equipment. His activities in trade affairs has kept him posted on the needs of the various industries.

He graduated from the University of Minnesota in 1911, then joined the Meese & Gottfried Company. When that company merged with the Pacific Division of Link-Belt Company, Mr. Hoffman was made manager of the Seattle office.

The new vice-president will take up his duties in the recently completed half-million dollar plant of the company, located at 400 Paul Avenue, San Francisco, California.

The Merrick Scale Manufacturing Company, of Passaic, N. J., makers of automatic continuous weighing machines, has appointed Irving R. Gard & Company, 1117 East Pike St., Seattle, as their Northwest representative.

A considerable number of Merrick machines have been installed in Pacific Coast pulp and paper mills for weighing pulp chips, hogged fuel, and other bulk commodities.

The Cameron Machine Company, Brooklyn, N. Y., is offering an instructive free book, "How Good Rolls of Paper and Paperboard Can Be Made At Least Expense." It is a review of the principles used in Camachine slitter and roll winders. The book is written especially for paper mill men who are interested in improving the quality of their rolls and lessening their production costs.

Pete, the Papermaker

A tale wherein natural ability was combined with mechanical engineering

By SQUIB

TAKE wasps now, for instance," remarked Pete, the Papermaker, as he watched the crew put on a new fourdrinier wire, "they made paper before Adam took a bite of the apple, but the trouble with the wasps was they never improved on the original idea."

"Meaning that you DID improve on it," put in the Super, a bit sarcastic like, but willing to listen nevertheless.

"It was simple," continued Pete. "All the wasp ever did by himself was to build a little paper dingus for a hive, never once getting on a commercial scale and making a continuous sheet. It's a long time back now since I got to thinking over the possibilities of combining natural ability with mechanical engineering and common sense.

"I made the original experiments in my own backyard," said Pete, as he watched the sheet start coming over again. "I had a little place with a big lawn. Not being over-fond of pushing a lawn mower in the first place it didn't help any to have a swarm of wasps threatening my life in the second place.

"Well, I had the head mechanic rig up a cross between a head box and a grinder pit on the front of the lawn mower and string a little wire around the spool where the knives were supposed to be. First thing you know I had that swarm of wasps singing the prisoner's song.

"You'd be surprised, but the invention worked just like I thought it would. All you had to do was push the rigging across the lawn just like usual and these wasps would chew off that grass and make paper out of it. The little wire acted all the same as a fourdrinier and I wound up a sheet of wasp paper on the roller hooked behind.

"Of course there had to be a few adjustments. For instance, you had to get the right number of wasps in the chew box, so as to regulate the speed of the mower to the paper making. Later on I got along with fewer wasps by working them only five days a week and making them hungrier and harder chewing in between times.

"Anyway, this lawn mower rig was purely experimental. I could only make a sheet a few inches wide and there just wasn't any sale for such small stuff. But, having evoluted the original continuous process wasp idea, I set off for bigger plans.

"Well, sir, I gathered up 400,000,000 wasps and built a big rig—all on the same plan, you understand, only more refined and much bigger — and went out to the prairies. I was really getting down to commercial production about this time. This machine was 30 feet wide.

As the proverb goes: If the gears don't mesh, there is no moving forward.

"A big machine like that, of course, you can't just push by hand like a lawn mower. I took care of that by rigging a steam engine on top, direct coupled to the caterpillar wheels on which the whole outfit rode. That was one difference of this paper machine. It was portable. You took it to the raw material, and didn't take the raw material to it, like we do nowadays.

"I put the 400,000,000 wasps in a glass chew box, the idea being that they could see plain that they were prisoners. That made them all so angry that they got boiling mad and came up to sting a special stinging boiler I had rigged right on top of the box. I've lost the calculation on that now, but I had it all figured out fine then. You know how hot the sting of just one wasp is. Imagine a 400,000,000 sting power boiler. You bet we had steam.

"Well, sir, we put off across the prairies, the wasps chewing up the dried grass and making paper out of it, me trotting along behind, adjusting this and oiling that, and unhooking a roll of paper every few minutes. The whole thing worked like a charm. Those wasps would clean off the grass slick as could be. Back and forth we'd go, this being a big prairie, and 60 miles in the round trip was just an 8-hour shift.

"Not being satisfied with mass production of the common grades I began making specialties by running first over a patch of blue grass, then over red clover, alfalfa, bunch grass, everything. Toward the end of the summer I was getting it down so fine that I could make almost any weight, color or finish you could want. Did it all just by picking the kind of grass I wanted and by controlling the number of wasps in the chew box."

"What kind of a price 'd you get for that wasp paper?" interjected the Super.

"I was coming to that," continued Pete the Papermaker. "You see, I got so absorbed in the mechanical production that I sort of forgot about sales until I began to notice rolls of paper laying all over the prairie. Fact is, the rolls were lying around so thick as to prevent any new grass from growing up and I finally run out of raw material.

"As though that were not enough trouble, the wasps got real hungry at having no grass to chew. So they put in an extra session on the stinging boiler, they were that mad, and blew the darn thing up."

"Anybody get hurt?" asked the Super, conscious of his SAFETY first mill practice.

"The wasp mortality was 399,998,999, which, if you'll figure it out, shows I was stung no less than 1,001 times. There's nothing soothing about that."

"But it was a grand idea," sighed the Super.

"Grand? Yes, but not in balance. Too many wasps and too much paper. By the way, Joe, what life are we getting now on these wires?"

News Print Production—May, 1931

The News Print Service Bureau's Bulletin No. 161 states that production of news print paper in Canada during May 1931 amounted to 202,607 tons and shipments to 202,280 tons. Production in the United States was 101,202 tons and shipments 102,555 tons, making a total United States and Canadian news print production of 303,809 tons and shipments of 304,835 tons. During May, 24,396 tons of news print were made in Newfoundland and 1,236 tons in Mexico, so that the total North American production for the month amounted to 329,441 tons.

The Canadian mills produced 128,123 tons less in the first five months of 1931 than in the first five months of 1930, which was a decrease of 12 per cent. The output in the United States was 83,490 tons or 14 per cent less than for the first five months of 1930. Production in Newfoundland was 3,453 tons or 3 per cent more in the first five months of 1931 than in 1930 and in Mexico 1,229 tons less, making a continental decrease of 209,389 tons or 12 per cent.

During May the Canadian mills operated at 63.0 per cent of rated capacity. United States mills at 68.8 per cent, Newfoundland mills at 96.3 per cent, and Mexican mills at 67.0 per cent, making a continental average of 66.4 per cent. Stocks of news print paper at Canadian mills totalled 39,962 tons at the end of May and at United States mills 32,956 tons, making a combined total of 72,918 tons which was equivalent to 4.0 days' average production.

NORTH AMERICAN PRODUCTION

	Canada	United States	Newfoundland	Mexico	Total
1931—May	202,607	101,202	24,396	1,236	329,441
Five Months	942,725	494,350	119,714	6,261	1,563,050
1930—Five Months	1,070,848	577,840	116,261	7,490	1,772,439
1929—Five Months	1,086,419	584,378	102,126	8,102	1,781,025
1928—Five Months	967,497	599,127	92,830	6,281	1,665,735
1927—Five Months	826,083	645,842	82,046	6,330	1,560,301
1926—Five Months	733,152	701,850	69,304	5,044	1,511,350
1925—Five Months	623,143	634,106	27,850	5,357	1,290,456
1924—Five Months	570,822	636,374	27,074	4,790	1,239,060

Here's a Sizeable Order

The Tonawanda book paper mill of the Chicago Tribune has been sold to International Paper Company, it was announced in June. The purchase price was approximately $4,000,000.

The International Paper Company is to supply until 1942 all the rotogravure paper used by the Chicago Tribune and the Daily News, New York's picture newspaper, and all the newsprint paper used by the Daily News and the Detroit Mirror, recently acquired by the Tribune Company of Chicago.

These papers are the largest users of rotogravure paper in the United States and the Daily News, New York's picture newspaper, uses more newsprint than any other newspaper in the United States, it is said. The total sale of paper under these contracts will exceed $115,000,000.

The Tonawanda Mill, located in New York State on deep water about fifteen miles from Niagara Falls, has a capacity of 40,000 tons a year and was built in 1926 by the Tribune Company of Chicago to supply the book paper used by Liberty Magazine, which was recently sold to the MacFadden Publications.

Camas Mill Closes For Double Holiday

The Crown Willamette Paper Company closed down its big 350-ton specialty mill for the double holiday over the Fourth of July. Resident Manager John Hanny reported the entire mill with the exception of one or two departments would be closed.

Pacific Mills Ltd. Earnings

With its Fifteenth Annual Report Pacific Mills, Limited, Ocean Falls, B. C., has changed its fiscal year from December 31st to April 30th. The net profit for the sixteen months ended April 30, 1931, after making provision for Dominion and Provincial income taxes was $625,266.61. Dividends to preference shareholders aggregating $179,757.00 were paid during the sixteen months' period and $412,498.74 was added to earned surplus.

During the period the sum of $580,389.81 was expended in additions and improvements to properties, including the new converting plant at Vancouver, costing about $120,000.00, and bonds amounting to $365,800.00 were redeemed, reducing the bonded indebtedness of the company as at April 30, 1931, to $3,867,200.00. The liquid position of the company is being maintained on a sound basis with current assets at April 30th of $3,246,938.47 and current liabilities of $515,853.00.

"The condition in the newsprint industry is still very unsatisfactory, a condition which has been accentuated by the general business depression," remarks A. B. Martin, president of the company. "Reduction in consumption of newsprint has not permitted the operation of the plant to capacity as we had anticipated, and in addition current prices are substantially less than a year ago."

ASSETS

Current Assets:		
Cash on hand and in Bank	$ 268,189.26	
Accounts Receivable	1,329,609.31	
Inventories at Cost or Market, whichever was lower	1,649,139.90	
		$3,246,938.47
Capital Assets:		
Properties	25,760,092.44	
Less Reserves for Depreciation and Depletion	9,120,136.71	
		16,639,955.73
Deferred Charges to Operations		182,057.03
		20,068,951.23

LIABILITIES

Current Liabilities		$515,853.00
Bonded Indebtedness:		
First Mortgage 6% Serial Gold Bonds outstanding	$2,097,000.00	
Guaranteed Subordinated Mortgage 6%: Gold Bonds, outstanding	1,770,200.00	
		3,867,200.00
Authorized Capital: Issued and Fully Paid:		
19,989 6% Cumulative Preference Shares of $100 each	1,998,900.00	
75,000 Ordinary Shares of $100.00 each	7,500,000.00	
	$9,498,900.00	
Earned Surplus	6,186,998.23	
		15,685,898.23
		$20,068,951.23

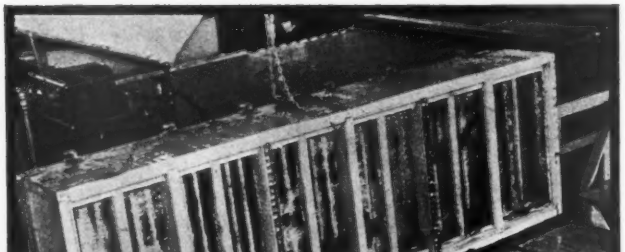
Rainier Authorizes New Bonds

Rainier Pulp and Paper Company has authorized an issue of $2,500,000 first mortgage sinking fund gold working bonds, the proceeds to be used for working capital and for necessary improvements and betterments at the company's plant at Shelton, Washington.

Of the amount authorized $500,000 first mortgage 6% sinking fund convertible gold bonds, series A due in 1946 will be offered immediately under preemptive rights to stockholders.

No public offering is contemplated at this time. According to the company's circular letter to stockholders these bonds are subject to conversion into class A and class B common stock of the company. The subscription price is $915 for each $1000 bond.

Ontario provincial government, impressed with gravity of unemployment situation, has been conferring with executives of Abitibi Power & Paper Company. Resulting action may mean allocation of tonnage and reopening of now idle mills at Sault Ste. Marie and Sturgeon Falls.



REQUIREMENTS OF CHLORAMINES FOR SLIME CONTROL...

SLIME ELIMINATION presents a different set of problems in every mill, with consequent variations in the requirements of chloramines. These requirements will depend upon (1) condition of the water supply, (2) kind of pulp, and (3) type of slime organisms.

When the raw water supply is high in organic content, it is sometimes desirable to apply chloramines ahead of the settling basin, to prevent the entrance of new slime bacteria to the system. This requires relatively large dosages. Conditions in the mill may make it more economical to apply the chlorine and ammonia between the settling basin and the filters, or after filtration, or to apply the chlorine at one point and the ammonia further along the line. The Great Western Laboratories are prepared to make suggestions as to experimental dosages which will give a sound basis for accurate determination of the exact procedure and dosage in each mill.

Only a consideration of all the factors involved, as they exist in a particular mill, make accurate diagnosis for effective slime control possible. Experiments have been carried out at the Great Western plant, and are now being conducted by Great Western Electro-Chemical Co. engineers under actual mill conditions, which enable us to give constructive assistance on chloramine application. We shall welcome opportunities to advise on the problems of slime control and use of chloramines, and invite inquiries as to initial experiments and final installations.

GREAT WESTERN
ELECTRO-CHEMICAL CO.

9 MAIN STREET, SAN FRANCISCO
PLANT: PITTSBURG, CALIFORNIA
SEATTLE . . . . LOS ANGELES

When writing GREAT WESTERN ELECTRO-CHEMICAL CO., *please mention* PACIFIC PULP AND PAPER INDUSTRY.

The Paper and Pulp Industry in April, 1931

According to identical mill reports to the Statistical Department of the American Paper and Pulp Association from members and cooperating organizations, The DAILY AVERAGE of total paper production in April increased 1% over March, but was 10% under April, 1930. The DAILY AVERAGE wood pulp production in April was 9% above March, 1931, and 16% under April, 1930.

Compared with April a year ago, the DAILY AVERAGE production registered a decrease in the following grades: Newsprint, uncoated book, paperboard, bag, wrapping, writing, hanging and building papers. Compared with March, 1931, uncoated book, writing and hanging papers were the only grades whose DAILY AVERAGE production showed a decrease. Total shipments of all major grades decreased 12% during the first four months of 1931 as compared with the first four months of 1930.

Identical pulp mill reports for the first four months of 1931 indicated that the total pulp consumed by reporting mills was 18% less than for the first four months of 1930, while total shipments to the open market during the first four months were 25% below the total for the same period of 1930.

Pulp inventories showed a further decrease and at the end of April, total stocks of all grades of pulp were 23% below the level of the preceding year. Bleached and easy bleaching sulphites, mitscherlich, kraft and soda pulps, all showed a decrease in tonnage.

REPORT OF PAPER OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF APRIL, 1931

GRADE:	Production Tons	Shipments Tons	Stocks on Hand End of Month—Tons
Newsprint	102,450	101,819	34,289
Book, Uncoated	77,277	78,518	46,029
Paperboard	163,417	162,409	63,323
Wrapping	45,985	46,333	43,951
Bag	11,715	12,632	6,099
Writing, etc.	25,961	26,487	49,967
Tissue	6,265	5,865	3,948
Hanging	3,164	2,963	4,182
Building	5,960	6,246	2,785
Other Grades	16,384	16,005	15,204
Total, All Grades—1931			
April	**458,578**	**459,277**	**269,777**
March	**452,581**	**451,225**	**268,903**
February	**419,021**	**419,604**	**268,074**
January	**445,193**	**443,749**	**268,810**

REPORT OF WOOD PULP OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF APRIL, 1931

GRADE:	Production Tons	Used During month—Tons	Shipped During Month—Tons	Stocks on Hand End of Month—Tons
Groundwood	88,685	74,108	1,886	60,535
Sulphite News Grade	29,403	27,192	1,563	5,301
Sulphite Bleached	18,046	16,289	2,347	2,098
Sulphite Easy Bleaching	2,491	2,430	158	572
Sulphite Mitscherlich	3,597	2,597	1,093	1,396
Kraft Pulp	28,520	22,027	6,936	7,611
Soda Pulp	18,232	14,798	3,805	2,801
Pulp—Other Grades	449	364	58	382
Total, All Grades—1931				
April	**189,423**	**159,805**	**17,846**	**80,696**
March	**174,120**	**155,865**	**15,008**	**68,924**
February	**160,736**	**146,882**	**16,774**	**65,677**
January	**170,937**	**157,324**	**15,105**	**68,597**

Canadian Exports of Pulp and Paper May, 1931

Canadian exports of pulp and paper were valued at $12,786,114 according to the report issued by the Canadian Pulp and Paper Association. This is an increase of $2,014,662 over the previous month.

Wood-pulp exports for the month were valued at $2,428,245 and exports of paper at $10,357,869 as compared with $2,168,682 and $8,602,770 respectively in the month of April.

Details for the various grades of pulp and paper are as follows:

	May, 1931		May, 1930	
PULP	Tons	Dollars	Tons	Dollars
Mechanical	9,796	257,532	15,660	460,905
Sulphite Bleached	21,653	1,350,863	19,024	1,355,194
Sulphite Unbleached	12,049	507,005	18,266	905,509
Sulphate	4,271	268,903	8,297	514,371
Screenings	1,367	22,602	1,577	29,705
All Other	414	21,340	392	22,791
	49,550	2,428,245	63,216	3,288,475
PAPER				
Newsprint	185,432	10,006,387	225,251	12,951,471
Wrapping	1,025	88,133	1,400	144,186
Book (cwts.)	2,870	23,940	3,019	26,915
Writing (cwts.)	62	385	315	2,892
All Others	.....	239,024	.....	311,142
		10,357,869		13,436,606

For the first five months of the year the exports of pulp and paper were valued at $60,788,339. In the corresponding months of 1930 the value was $76,644,844 so that there has been a decrease this year of $15,856,505.

Details for the various grades are given below:

	5 Months, 1931		5 Months, 1930	
PULP	Tons	Dollars	Tons	Dollars
Mechanical	62,965	1,852,494	78,617	2,313,356
Sulphite Bleached	98,702	6,404,456	116,270	8,604,461
Sulphite Unbleached	57,897	2,534,072	88,654	4,409,971
Sulphate	27,764	1,788,539	44,115	2,551,812
All Other	8,480	214,325	11,205	235,246
	255,808	12,793,886	338,861	18,114,846
Newsprint	835,935	46,264,637	973,282	56,098,107
Wrapping	4,738	438,953	6,396	671,596
Book (cwts.)	10,290	88,086	17,397	162,572
Writing (cwts.)	1,300	12,003	1,068	9,805
All Other	.....	1,190,774	.....	1,587,918
		47,994,453		58,529,998

Pulpwood exports for the first five months of this year were 311,237 cords valued at $2,809,151 as compared with 510,347 cords valued at $4,780,208 in the corresponding months of last year.

Orient Interested in Coast Pulp-Paper Industry

That the nations of the Orient have a growing interest in the developing pulp and paper industry of the Pacific Coast as a potential source of supply is indicated in a letter received recently from A. Viola Smith, U. S. Trade Commissioner stationed at Shanghai, China.

The Commissioner writes of the Review and Reference number as follows:

"The 1931 Annual Review Number of the PACIFIC PULP AND PAPER INDUSTRY will be placed in our Commercial Library where it may be perused by the numerous visitors who call at this office daily.

"The very complete manner in which you have treated the entire paper industry on the Pacific Coast will also be of great assistance to this office in dealing with various questions which constantly arise in regard to new sources of supply and general questions in connection with the paper industry."

Portland's Newest Office Building

The new Mead Building, 109 Fifth Street, corner of Washington, Portland, has been opened by Stephen A. Hull, general manager of the Terminal Sales Building in Portland and Seattle.

Colorado Paper Company Still In Courts

The affairs of the Colorado Pulp & Paper Company are still before the Colorado courts, despite the receiver's sale consummated last October. That sale to the Colorado Paper Products Company was declared illegal in a recent decision. A review order replaced the district judge who had approved the sale and ordered George W. Beck to terminate his duties as receiver and to return to the company's credit $12,500 in receiver's fees. District Judge E. V. Holland now has the case before his court. He has replaced Mr. Beck with Fred D. Stackhouse, clerk of court, and authorized him to advertise the property for 60 days. The Colorado Paper Products Company will remain in charge of and operate the company until the sale. The sum of $22,293 representing present assets have been turned over to the district court.

Canadian International 1930 Earnings

The 1930 annual report of Canadian International Paper Company shows net revenue available for interest and depreciation, of $5,724,726 as compared with $5,934,185 for 1929. After deducting depreciation, earnings for 1930 available for interest amounted to $4,230,147, or over two and two-thirds times the interest requirements on all of the company's first mortgage bonds and prior liens. Revenues from the newsprint operations of the company were larger in 1930 than in 1929, but this improvement was offset by lower revenues from the bleached sulphite pulp mill.

The St. Helens Pulp & Paper Company, St. Helens, Oregon, extended its production last month to include some forms of sulphite papers. Pulp for the new product is being supplied by the Spaulding Pulp & Paper Co., at Newberg.

IMPORTS OF PULP WOOD AND WOOD PULP INTO THE UNITED STATES BY COUNTRIES AND CUSTOMS DISTRICTS

April, 1931

Compiled by the U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce
(Figures Subject to Revision.)

PULP WOODS

	Rough				Peeled				Rossed			
	Spruce		Other		Spruce		Other		Spruce		Other	
	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars
COUNTRIES—												
Canada	324	2,430	.....	.....	23,851	241,556	16,212	128,876	195	2,085	.....	.....
Total	324	2,430	.....	.....	23,851	241,556	16,212	128,876	195	2,085	.....	.....

Total Imports of Pulpwood, April, 1931—40,582 cords; $374,947.

WOOD PULP

	Mechanically Ground				Chemical Unbleached Sulphite		Chemical Bleached Sulphite		Chemical Unbleached Sulphate		Chemical Bleached Sulphate		Soda Pulp, Unbleached and Bleached	
	Unbleached		Bleached											
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
COUNTRIES:														
Austria	.....	.....	.....	.....	.....	.....	100	5,240	.....	.....	.....	.....	.....	.....
Czechoslovakia	.....	.....	.....	.....	.....	.....	524	26,378	.....	.....	.....	.....	.....	.....
Estonia	.....	.....	.....	.....	1,092	43,614	.....	.....	.....	.....	.....	.....	.....	.....
Finland	662	15,854	285	6,863	8,587	302,489	192	19,235	4,535	132,725	485	21,772	.....	.....
Germany	.....	.....	.....	.....	2,078	88,118	4,422	274,975	51	2,739	.....	.....	.....	.....
Lithuania	.....	.....	.....	.....	498	20,802	.....	.....	.....	.....	.....	.....	.....	.....
Norway	200	2,377	150	3,397	913	42,346	2,198	110,814	.....	.....	.....	.....	.....	.....
Poland and Danzig	.....	.....	.....	.....	319	8,826	.....	.....	.....	.....	.....	.....	.....	.....
Sweden	247	4,070	25	576	4,403	218,058	3,475	210,028	3,503	123,247	109	6,084	.....	.....
Yugo. and Albania	.....	.....	.....	.....	875	30,467	.....	.....	.....	.....	.....	.....	.....	.....
Canada	19,088	460,651	.....	.....	8,667	363,797	16,331	1,088,942	3,885	247,128	1,553	142,133	413	22,213
Total	20,197	482,952	460	10,836	27,432	1,118,517	27,242	1,735,612	11,974	505,839	2,147	169,989	413	22,213
CUSTOMS DISTRICTS:														
Maine and New Hampshire	3,264	97,074	.....	.....	3,279	148,332	4,829	327,517	264	10,192	.....	.....	.....	.....
Vermont	883	22,714	.....	.....	602	24,834	792	47,098	3,210	216,308	1,525	139,736	169	7,922
Massachusetts	.....	.....	.....	.....	2,298	86,754	1,952	131,991	814	27,056	476	21,821	.....	.....
Connecticut	302	6,032	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Lawrence	1,506	40,940	.....	.....	947	47,053	3,975	244,317	385	20,584	.....	.....	186	11,249
Rochester	132	4,622	.....	.....	.....	.....	23	1,220	.....	.....	.....	.....	.....	.....
Buffalo	956	23,309	.....	.....	3,011	123,759	1,088	88,292	.....	.....	.....	.....	.....	.....
New York	6,169	116,635	50	662	2,124	101,824	1,261	78,350	2,263	85,357	.....	.....	.....	.....
Philadelphia	1,998	59,201	.....	.....	4,638	155,639	2,373	133,004	1,796	55,505	.....	.....	.....	.....
Maryland	586	14,094	125	3,311	6,803	297,280	3,428	195,166	1,045	28,492	118	6,035	.....	.....
Virginia	.....	.....	285	6,863	972	37,588	247	13,159	1,435	38,638	.....	.....	.....	.....
Mobile	.....	.....	.....	.....	.....	.....	.....	.....	77	3,718	.....	.....	.....	.....
New Orleans	.....	.....	.....	.....	799	26,685	403	25,464	395	9,793	.....	.....	.....	.....
Los Angeles	.....	.....	.....	.....	85	5,695	.....	.....	.....	.....	.....	.....	.....	.....
San Francisco	.....	.....	.....	.....	66	1,413	.....	.....	79	1,668	.....	.....	.....	.....
Washington	.....	.....	.....	.....	459	14,207	99	5,253	.....	.....	.....	.....	.....	.....
Dakota	299	10,612	.....	.....	132	6,644	33	1,778	190	7,535	.....	.....	.....	.....
Duluth and Superior	716	11,607	.....	.....	145	2,309	27	1,492	.....	.....	.....	.....	.....	.....
Michigan	3,386	75,912	.....	.....	1,072	38,301	6,710	441,511	21	1,033	28	2,397	58	3,042
Total	20,197	482,952	460	10,836	27,432	1,118,517	27,242	1,735,612	11,974	505,839	2,147	169,989	413	22,213

Total—All Grades of Wood Pulp, April, 1931—89,865 tons; $4,045,958.